

INDEX OF SUBJECTS, 1955

One Hundred and Fourteenth Annual General Meeting, 3577.

A

Acacia cyanophylla, composition of gum of, 269.
Acacia karroo, structure of gum of, 1428.
Acedianthrone, calculation of bond lengths in, 1689.
Acetaldehyde, photolysis. Part III, 1076.
 photolysis in presence of nitric oxide, 1076.
Acetaldehydes, cyclohexylidene-, prep. and reactions, 320.
Acetamide, hydrolysis in hydrochloric acid, 2520.
Acetanilide, *N*-bromo-2:6-dimethyl-, prep. and properties, 1845.
N-chloro-2:6-dimethyl-, prep. and properties, 1845.
Acethydrazide, hydrolysis in hydrochloric acid, 2520.
Acetic acid, cyano-, ethyl ester, reactions, 515.
cyclopent-2-enyl-, position of double bond in, 4227.
 trichloro-, acidity function for solutions of, in water, 1218.
 trifluoro-, acidity function for solutions of, in water, 1218.
acids, aryl-, free-radical dimerisation, 4229.
 chloro-, reactions with azulene, 585.
 chlorohydroxyphenoxy-, prep., 3681.
 monohalogeno-, conductometric evaluation of ionisation functions of, 2104.
anhydride, behaviour in sulphuric acid, 298.
 catalysis of hydrolysis of, by hydrochloric acid, 838; by strong acids, 843.
 hydrolysis. Parts IV, V, 838, 843.
Acetonaphthones, benzoyloxytetrahydro-, Baker-Venkataraman transformation, 3986.
Acetone, anhydrous, order and mechanism of isotopic exchange reactions of alkyl bromides in, 1475.
 condensation with anthranilamide derivatives, 2527.
 kinetics of interaction of halide ions with alkyl halides in, 3169, 3173, 3177, 3180, 3187, 3193, 3196.
Acetone, benzyloxy-, reaction with benzaldehyde, 3292.
 1-bromo-1:3-diphenyl-, conversion into 1-phenylindan-2-one, 1342.
 1:3-dichloro-, reaction with phenol and its ethers, 1706.
Acetones, aryl-, free-radical dimerisation, 4229.
 benzylidene-, effects of *ortho*-substituents on ultraviolet spectra of, 3773.
Acetone oximes, benzylidene, *p*-substituted, Beckmann rearrangement, 296.
Acetonitrile, α -bromo-*p*-chlorophenyl-, reaction with thiourea, 4443.
Acetophenone, ω -isobutyl-. See Benzene, 1:3-dioxoiso-hexyl-, 3341.
Acetophenones, electronic spectra, 3754.
Acetophenones, ω -chloro-*o*-hydroxy-, prep. of flavonols from, 862.
 hydroxy-, and similar ketones, bromination, 18.
o-hydroxy-, reactions with *o*-hydroxy- and *o*-methoxy-benzaldehydes, 166.
Acetyl chloride, catalysis of hydrolysis of, by hydrochloric acid, 838.
 mechanism of hydrolysis of, 3303.
 reaction with ethanol, 4121.
 peroxide, prep. and use in dimerisation of esters and ketones, 349.
 phosphate, synthesis in aqueous solution, 732.
Acetylene, phenyl-, reaction with iron carbonyl, 4021.
Acetylenes, use in anodic syntheses, 2218.
Acetylenic compounds, researches on. Parts XLIX—LI, 1862, 1874, 3636.
 systems, conjugated, infrared absorption, 1874.
Acid chlorides, reaction with ethanol, 4121.
Acids, catalytic conversion into ketones, studied by isotopes, 4423.

Acids, amino-, and peptides, cyto-active. Part II, 1223.
 α -amino-, basic and acidic, polymerisation, 232.
 prep. of chloroethylamino-derivatives of, 890.
 prep. of 1:5-disubstituted 2-mercaptoglyoxalines from, 1695.
 aqueous, comparison of exchange reactivity of, 3622.
 bile. See Bile acids.
 carboxylic, molecular association in aqueous solutions, 2500.
 conjugated, from castor oil, 1069.
 dibasic, hydrolysis of amides of. Part III, 2652.
 ω -dicarboxylic, infrared spectra and crystallinity, 2431.
 1:2-dicarboxylic. Part IV, 423.
 fatty, adsorption on charcoal from aqueous solutions of, 1493.
 chain-extension by electrolysis with benzyl half esters, 1097.
 new prep. of glycol monoesters of, 1043.
 Part III, 3782.
cis-fatty, selectivity of hydrogenation in prep. of, 3510.
 heterocyclic, stabilities of metal chelate compounds formed by. Part I, in aqueous solution, 1175. Part II, in aqueous dioxan, 3467.
 α -hydroxy-, oxidation by manganic pyrophosphate, 217.
 γ -keto-, reaction of indolylmagnesium iodide with enol-lactones of, 2481.
 α -methylamino-, prep., 1632.
 oxidising, use in chlorination of benzoic acid in aqueous system, 4139.
 perfluoro-, prep., 3005.
 phenylated aliphatic, reactions with chlorobenzene, 3919.
 strong, acylation and allied reactions catalysed by. Parts XIII, XIV, 887, 3089.
 α -thioacylamino-, conversion into thiazolones and derivatives thereof, 1791.
 reactions of, 1791.
 $\alpha\beta$ -unsaturated, methyl-substituted. Part II, prep., and conversion into amines and dimethylamines, 1547.
Acidity function H_0 , for solutions of trichloro- and trifluoroacetic acid in water, 1218.
Acidity function J_0 , formulation, 1263.
Acrylic acids, substituted, reactions with benzene catalysed by aluminium chloride, 3919.
Acrylonitrile, interaction with amorphous carbons, 4344.
Activity coefficient of hydrochloric acid, 3696, 3701.
Acyl nitrates, structure and mode of ionisation, 729.
 phosphates, synthesis in aqueous solution, 732.
Acylation and allied reactions catalysed by strong acids. Parts XIII, XIV, 887, 3089.
Additions, olefinic, with asymmetric reactants. Part III, 34.
Adenosine, deoxy-, prep. of mononucleotides derived from, 808.
Adenosine phosphates, deoxy-, prep., 808.
Adenosine-5' phosphates, oxidation with periodate, 2206.
Adipic acid, perfluoro-3-methyl-, prep. and reactions, 1749.
Adsorption, from binary liquid mixtures, 4103.
 on charcoal from aqueous solutions of fatty acids, 1493.
Aerobacter aerogenes, resistance to 8-hydroxyquinoline, 347.
 (—)-*epi*Afzelechin, isolation and structure, 2948.
Agave sisalana, isolation of sisalagenin from, 1671.
Akammicine, note on, 2049.
*pseudo*Akammicine, note on, 2049.
Akammine, ultraviolet spectra, 3362.
 L-Alanine, conversion into its vinyllogue, 1631.
 DL-[β - 14 C]Alanine, *p*-di-(2-chloroethyl)aminophenyl-, prep., 1223.
Alanines, *para*-substituted phenyl-, resolution, 1223.

- Alcohols**, and related compounds, determination of isotopic composition of oxygen in, 155.
 branched-chain, prep., 2705.
 reactions with phosphorus tribromide, 277.
- Alcohols**, chloro-, reaction with boron trichloride, 1470.
 substituted dialkyl-, prep., 2705.
- Alcoholysis** of triphenylmethyl chloride, 4130.
- Aldazines**, salts of, prep., 1753.
- Aldazinium chlorostannates**, *N*-methyl-, derived from methylhydrazine, prep., 2044.
- Aldehydes**, aromatic, prep. by means of dinitrogen tetroxide, 1110.
 ethylenic, prep. with lithium alkenyls, 3334.
 kinetics of oxidation of, by alkaline ferricyanide, 40.
 $\alpha\beta$ -unsaturated, and related compounds. Part VII, 2657.
- Aldopentoses**, prep. of aldotetroses from, *via* 1:1-diethylsulphonyl-3:4:5-trihydroxypent-1-enes, 1212.
- Aldosylamines**, *N*-aryl-, acetates and benzoates, as pyranose derivatives, 3674.
- Aldotetroses**, prep. from aldotetroses *via* 1:1-diethylsulphonyl-3:4:5-trihydroxypent-1-enes, 1212.
- Aleprestic acid**, prep., 4227.
- Alga**, fresh-water, see *Chara*.
- Alkadienes**, fluoro-, prep., 4302.
- Alkali metals**, organometallic compounds of. Part V, 1712.
- Alkaloids**, indole, synthetic experiments related to, 2675.
 morphine, benzylisoquinoline, aporphine, and tetrahydroberberine, absolute stereochemistry, 3252.
 of *lycoris*. (Parts XXIX, XXX, 1066, 2962.) Part XXXI, 3392.
 of morphine-thebaine group. Parts III—V, 3237, 3245, 3252.
 of *Picralima nitida*, Stapf, Th. and H. Durand. Part III, 2049.
 tropane, stereochemistry. Part VI, 3504.
- cycloAlkanecarboxylic acids**, 1-anilino-, pyrolysis, 4407.
- Alkanes**, effect of molecular structure on relative chlorination rates of, 285.
 fluoro-, photochemical oxidation, 2151.
 polyfluoro-, containing functional groups, prep. from chlorotrifluoroethylene, 4291.
- Alkatrienes**, fluoro-, prep., 4302.
- Alkenylation** with lithium alkenyls. Parts IX—XII, 3324, 3331, 3334, 3337.
- Alkyl bromides**, secondary and tertiary, order and mechanism of isotopic exchange reactions of, in acetone, 1475.
 simple, kinetics of interaction with bromide ions in acetone, 3180.
 kinetics of interaction with chloride ions in acetone 3173.
 kinetics of interaction with iodide ions in acetone, 3187.
 chlorides, simple, kinetics of interaction with chloride ions in acetone, 3169.
 kinetics of interaction with iodide ions in acetone, 3177.
 esters, intensities of vibration bands of, 479.
 iodides, simple, kinetics of interaction with bromide ions in acetone, 3193.
 kinetics of interaction with iodide ions in acetone, 3196.
 nitrates, effect of changes in the nucleophilic reagent on the S_N and E_{CO} reactions of, 616.
 phosphorobromidites, prep., 277.
 phosphorodibromidites, prep., 277.
 groups, perfluoroalkyl-, reactivity in 2-(perfluoroalkyl)-benzimidazoles, 534.
 steric and polar effects of, in bimolecular nucleophilic substitution, 3200.
- Alkyl-oxygen fission** in ester hydrolysis, kinetics. Parts II—IV, 2010, 2673, 4020.
- cycloAlkyl hydroperoxides**, 1-hydroxy-, reaction with ferrous compounds, 3463.
- Alkylamines**, aryl-2-chloro-, possessing latent cytotoxic activity, prep., 3110.
 arylid-2-halogeno-, prep. of sulphonium compounds related to, 1388.
 aryl-2-halogeno-. Parts XIII—XV, 890, 3110, 3835.
 cationic and basically substituted, prep., 3835.
 bisperfluoro-, prep., 2532.
- Alkylenealkylamines**, perfluoro-, prep. and spectra, 1881.
- Alkyl acetate**, reaction with hypochlorous acetate at constant pH, 2667.
- Allyl bromide**, kinetics of decomp., 965.
 1-methyl-, bimolecular substitution with anionotropic rearrangement in, 1615.
- Allylic compounds**, observations on ozonolysis of, 2830.
- Alnusenone**, characterisation, 2616.
- Alstyrine**, prep. of compounds related to, 2865.
- Aluminium bromide**, anhydrous, conductivity in ethyl bromide solution, 452.
 chloride, catalysis of reactions of substituted acrylic acids with benzene, 3919.
 Alumina hydrates, precipitated, calcination, 3804.
- Amides**, aliphatic, base-catalysed hydrolysis, 2601.
 of dibasic acids, hydrolysis. Part III, 2652.
 of vegetable origin. Parts III—VII, 995, 999, 1007, 1025, 4244.
- Amidines**, cyclic. Parts III, IV, 510, 991.
- Amines**, aliphatic, action of X-rays on, in aqueous solution, 2594.
 entropies of reaction of silver and hydrogen ions with, 1347.
 and imines, heterocyclic. Parts IV, V, 3525, 3530.
 heterocyclic, condensation with ethyl 2-oxocyclopentane-carboxylate, 1775.
 reaction with binuclear halogen-bridged complexes of platinum(II), 3858.
 secondary, N-H vibration in, 4169.
 tertiary, compounds with nitrosyl chloride and with dinitrogen tetroxide, 1557.
 trifluoro-secondary, N-H vibration in, 4169.
- Amino-group**, deformation frequencies, 669.
- Amino-groups**, γ -tertiary, intramolecular interaction with cyano-groups, 2371.
 2:4:6-tri-iodophenyl isocyanate as reagent for, 3322.
- Ammonia**, absorption by scandium oxalate, 255.
 action on alkylidenethiothiazolidones, 2265.
 liquid, reaction with cholesteryl toluene-*p*-sulphonate, 986.
- Ammonium bromides**, dialkylbenzylphenacyl-, intramolecular rearrangement, 4487.
 dichromate, thermal decomp., 1033.
 salts, quaternary. Part III, 317.
 degradation. Part IX, 4487.
 salts, cetyltrimethyl-, of acidic polysaccharides, 3788.
p-aroylphenylethylidimethyl-, formation and decomp., 317.
- 1- α -Amyradiene**, constitution, 3378.
- d*- α -Amyradiene**, constitution, 3371.
- α -Amyradienone-III**, constitution, 3371.
- "iso- α -Amyradienonyl-II acetate"**, constitution, 3992.
- l*- α -Amyradiene**, constitution, 3371.
- α -Amyrin**, constitution and stereochemistry, 2610.
 constitution of product of degradation of, 3371.
 conversion into phyllanthol, 3992.
 products of oxidation of, with ozone or hydrogen peroxide, 3072.
 stereochemistry, 2125.
- Anacyclin**, nature of, 999.
- Anacyclus pyrethrum DC**, nature of pellitorin and anacyclin from, 999.
- Analgesics**, synthetic, configurational studies of, 900.
- Analytical chemistry**, steric hindrance in. Part III, 430.
 properties of 8-hydroxy-5-, -6-, and -7-trifluoromethyl-quinoline, 376.
- Androgens**, potential, prep. Parts I, II, 2398, 2403.
- Androstan-17-ones**, partial reduction, 3426.
- Angustione**, structure, 2860.
- Angustione**, dehydro-, structure, 2860.
- "Anhydrovitamin A₁"**, identity with an ethoxyanhydrovitamin A₁, 2763.
- Anilides**, halogenation. Part XVII, 2772.
- Aniline**, condensation with isoprene, 4347.
 reaction with *o*-acetylphenyl toluene-*p*-sulphonate, 1278.
- Aniline**, dimethyl-, structure of complexes with nitrosyl chloride and with dinitrogen tetroxide, 1557.
p-nitroso-, prep., 2049.
- Anilines**, *p*-alkoxy-, prep., and biological activity, 1573.
N-alkyl- and *N,N*-dialkyl-*p*-nitroso-, prep., 1677.
- Anils**, cyclodehydration. Parts I, II, 2351, 2358.
 of the benzene, diphenyl, fluorene, and fluorenone series, mesomorphism, 4359.

- Anisil**, reduction by sodium in liquid ammonia, 2403.
Anisoin, reduction by sodium in liquid ammonia, 2403.
Anisole, *p*-acetoxylation with lead tetra-acetate, 1404.
Anisoles, 2-nitroso-, electronic spectra, 3721.
Annual General Meeting (114th). Report of Honorary Officers, Report of Council, and Accounts for Year ended December 31st, 1954, 3577.
Anodic processes at very low current density, kinetics of. Part I, 1702.
syntheses. Parts XIII, XIV, 1097, 2218.
Anthelmintics, prep. of heterocyclic sulphur compounds as possible, 1030.
 prep. of phenothiazine derivatives as possible. Part II, 1281.
Anthoxanthins. Part II, 170.
 survey of. Part IX, 1589.
Anthracene, delocalisation of electrons in solid organic complexes of, 4089.
 photo-effects in, 1728.
 polarised spectrum, assignment of the intense short wavelength system of, 539.
 Parts I—III, 539, 2302, 2309.
 system at 3800 Å in, 2309.
 weak transitions and second-order crystal fields in, 2302.
 quenching of fluorescence of, by the solvent, 4394.
 spectral dependence, quantum efficiency, and relation between photoconductance and semiconductance in, 1734.
Anthracenes, *meso*-substituted dihydro-, steric effects in reaction of *cis*- and *trans*-isomers, 4159.
Anthranilamides, condensation with acetone, 2527.
Anthranilic acids, reaction with quinones, 4440.
Anthraquinones, 1:4- and 1:5-di-(α -anthraquinonylamino)-, cyclisation to carbazoles, 3399.
Anti-folic acid activity, synthesis of compounds with potential. Parts III—VI, 2027, 2032, 2036, 2214.
Antimony compounds, heterocyclic, configuration. Part III, 1662.
 trifluoride, electrical conductivity, 279.
p-Carboxyphenyl-2-diphenylphenylstibine, prep. and optical resolution, 3116.
 Triarylstibines, stereochemistry, 3116.
Aphididae, colouring matters of. Parts XII—XIV, 954, 959, 1144.
 (\pm)-**Apiose**, prep., 3405.
Aporphine, absolute stereochemistry of alkaloids related to, 3252.
L-Arabinose, 3-*O*- β -L-arabopyranosyl-, isolation from lemon gum, 583.
 5-deoxy-, prep. from 1:1-diethylsulphonyl derivatives of L-rhamnose, 3544.
Aralphyl nitrates, effects of structural changes in, on S_N and E_{CO} reactions, 616.
Arenesulphonyl chlorides, reaction with 1-arylbiurets, 1497.
Aristolachia species, chemistry. Part II, 2114.
Aristolactone, rearrangements, 2114.
Aromatic compounds, approximate potential function for out-of-plane vibrations of molecules of, 1813.
 halogenated, absorption spectra in relation to chemical reactivity, 1350.
 kinetic studies of oxidation of, by potassium permanganate. Parts I—IV, 555, 1407, 2850, 4186.
 methyl affinities of, 1435.
 reactions with α -halogeno-ketones. Part II, 1706.
 S_N mechanism in. Parts XIV, XV, 2926, 2929.
 simple, catalysed reactions with ethylenic systems. Part III, 3919.
 substituted, infrared spectra of, in relation to chemical reactivity of their substituents, 2818.
Arrhenius parameters for a normal-*iso*-diazote transformation, 3154.
Arsanthren, 5:10-dihydro-5:10-dimethyl-, prep. of derivatives of, 411.
Arsenic trichloride, system with germanium tetrachloride, 1604.
 Arsenic, tervalent, polarographic reduction in non-complex-forming media, 704.
 Dialkyl-(*o*-dialkylphosphinophenyl)arsines, prep. and reactions, 4472.
o-Dimethylaminophenyldimethylarsine, palladium derivatives, prep., 1269.
 Phenyldialkylarsines, metal complexes, 4007.
 See also Diarsines.
cycloArtanol, similarity of reactions of, to those of *cyclo*-laudanol, 596.
cycloArtenol, constitution as 9:19-*cyclo*lanost-24-en- β -ol, 1316.
Aryl ketones, *o*- and *p*-hydroxy-, bromination, 18.
Arylamines, *N*-2-cyanoethyl-, mechanism of prep. of, 3628.
Arylation of ferrocene derivatives, 367.
Ash, effect on adsorption by commercial charcoal, 4103.
Aspartyl peptides, rearrangement, 259.
Aspen, *p*-hydroxybenzoate groups in lignin of, 2347.
Aspergillus niger, prep. of β -linked glucosaccharides from cellobiose by, 3734.
 production of dimethyl sulphide in cultures of, 1153.
 studies of. Part IV, 3734.
Association, molecular, of carboxylic acids in aqueous solution, 2500.
 of hydroxylic compounds in benzene, 3793.
 of ions, thermodynamics of. Part I, 1458.
Association complexes of aromatic organometallic halides in solution, 108.
 constants for equilibria in the systems: *s*-trinitrobenzene-benzene and chloranil-benzene, 1202.
 of complexes, determination, 3889.
Autoxidation of cumene, products formed from phenolic inhibitors of. Part II, 2753.
 of α -cyperone, 525.
 of cyclohex-2-enyl methyl sulphide, 1996.
 of $\alpha\beta$ -unsaturated ketones, 3288.
Azanaphthalenes. See Polyzanaphthalenes.
Azasteroids, experiments on synthesis of. Part II, 1775.
Azep[4, 5-*b*]indole, 1:2:3:4:5:10-hexahydro-7-hydroxy-3-methyl-, prep. by molecular rearrangement, 375.
Azepinium salts, optically active, prep., 1242.
Azepino(1':2'-1:2)benzimidazoles, hexahydro-, prep., 3275.
Azides, organic, reactions. Part IV, 1634.
Azines, $n-\pi$ transitions in, 121.
Azo-compounds, aromatic. Part VII, 2816.
o-mercapto-. Part VII, 3798.
Azobenzene, polarisation in vapour phase, 3840.
Azobenzene, 2:2'-dibenzylthio-, prep. and debenzylation, 3798.
4:4'-Azobis-4-cyanoheptane-1:7-dioic acid, reducing action of radical from, 4256.
4:4'-Azobis-4-cyanopentanoic acid, prep., separation into *meso*- and racemic isomers, and reactions of the latter, 4256.
Azonaphthalenes, absorption spectra, 2816.
 geometrical isomerism, 3441.
Azoquinolines, prep. and absorption spectra, 2816.
Azoxybenzene, kinetics of a polymorphic transformation of, 489.
 kinetics of reduction by titanous chloride, 1393.
Azulene, fine structure. Part I, 1193.
 proton-acceptor properties, 585.

B

- Bacilli**, tubercle, constituents of lipids of. (Part V, 3851), Part VI, 3971.
Bact. lactis aerogenes, resistance to 8-hydroxyquinoline, 347.
Baker-Nathan effect, relation to electronic spectra and hyperconjugation, 2085.
Baker-Venkataraman transformation, effect of bond structure on, 3986.
Baker's yeast, polysaccharides of. Part I, 355.
Balance, electromagnetic sorption, details of construction, 1438.
Bamberger synthesis of 1:2:4-triazines, 2326.
Barley, malted, constitution of a modified starch from, 3072.
Bases, aromatic, additive compounds as intermediates in chlorination of, 24.
 and aromatic hydrocarbons, reactions with polynitro-compounds. Parts XIV, XV, 89, 1202.
 heterocyclic methylene, derivatives, 937.
Beckmann rearrangement of substituted benzylideneacetone oximes, 296.

- Benzacridines**, angular, prep. as possible carcinogens, 1082.
- Benzacridines**, 5-amino-, prep., and relation to chemotherapy of tuberculosis, 4309.
- Benzaldehyde**, reaction with benzyloxyacetone, 3292.
- Benzaldehyde**, *m*-hydroxy-, prep. by photobromination, 1628.
- 1:2:3:6-tetrahydro-, reaction with alkali, 1462.
- Benzaldehydes**, electronic spectra, 3754.
- Benzaldehydes**, *p*-*n*-alkoxy-, mesomorphism of anils of, 4359.
- o*-hydroxy- and *o*-methoxy-, reaction with *o*-hydroxyacetophenones, 166.
- nitro-, condensation with phenols, 3914.
- Benzaldehyde semicarbazone**, *p*-acetamido-, prep. of thiophen analogue of, 1071.
- Benzamides**, *p*-alkyl-, base-catalysed hydrolysis, 2601.
- Benzanthrone**, calculation of bond lengths in, 1683, 1689.
- meso*Benzanthrone, 6-phenyl-, direct hydroxylation, 91.
- meso*Benzanthrones, 3-aryl-, cyclisation, 849.
- meso*Benzanthrone-3-carboxylic acid, decomp. in presence of *meso*benzanthrone, 4027.
- Benzene**, approximate potential function for out-of-plane vibrations of, 1813.
- heats of mixing with *cyclohexane* and *n*-heptane, 4141.
- molecular polarisation and association of hydroxylic compounds in, 3793.
- reactions with substituted acrylic acids catalysed by aluminium chloride, 3919.
- systems with *s*-trinitrobenzene and with chloranil, association constants for equilibria in, 1202.
- Benzene**, chloro-, arylation with *p*-chlorophenyl radicals, 1425.
- reaction with phenylated aliphatic acids, 3919.
- p*-di-(6-carboxyhexanoyl)-, prep., 3294.
- 2:4-dimethoxynitro-, prep., 739.
- 1:3-dioxoisohexyl-, prep. by rearrangement of α -acetylbutyrophenone, 3341.
- ethyl-, kinetic studies of oxidation of, by potassium permanganate, 2850.
- nitro-, arylation with *p*-chlorophenyl radicals, 1425.
- nitroso-, electronic spectrum, 3721.
- kinetics of reaction of, with potassium ferrocyanide catalysed by mercury compounds, 1449.
- n*- and *iso*-propyl-, kinetic studies of oxidation of, by potassium permanganate, 4186.
- 1:3:5-trinitro-, cryoscopic behaviour in sulphuric acid, 3453.
- stabilities of solid complexes of, with aromatic hydrocarbons, 89.
- system with benzene, association constants for equilibria in, 1202.
- Benzenes**, substituted, heats of mixing of, 1230.
- Benzenes**, *p*-di-(2-chloroethyl)amino-, prep., 3835.
- 1-halogeno-2-nitro-, rate of replacement of halogen by methoxide in, 2926.
- [$^2\text{H}_1$]Benzene, reaction with aqueous sulphuric acid, 3619.
- Benzenecarboxylic acids**, hydroxy- and methoxy-, 2989.
- Benzenesulphenyl bromide**, *o*-nitro-, reactions, 4491.
- Benzenesulphonic acid**, 2':3'-dimercaptopropyl-, prep. of water-soluble salts of, 1307.
- Benzidine**, 2-nitro-, thermal decomp. of bisdiazonium perbromide of, 1274.
- [$^{14}\text{N}_1$]Benzidine, prep., 98.
- Benzimidazoles**, modified synthesis. Part II, 1079.
- 2-(perfluoroalkyl)-, reactivity of perfluoroalkyl groups in, 534.
- See also Methylene-bis-2-benzimidazoles, 1079.
- Benzomesobenzanthrones**, direct hydroxylation, 91.
- Benzo-1:4-dioxan**, derivatives of. Part III, 1313.
- dinitro-, prep. and orientation of derivatives of, 1313.
- Benzofuran**, reactivity, 3688.
- Benzofurans**, 2-alkyl-, reactivity, 3688.
- 2-benzoyl-, and related compounds, prep. and oestrogenic activity, 3693.
- Benzocyclohepta-1:4-diene-3:7-dione**, dimethoxy-, prep., 2233.
- Benzoic acid**, chlorination in aqueous system by use of oxidising acids, 4139.
- 3- β -D-glucosyloxy-2-hydroxy-. See Salicylic acid, 3- β -D-glucosyloxy-, 4206.
- 2:4:6-trimethyl-, *tert*-butyl ester, alkyl-oxygen fission in hydrolysis of, 2010.
- Benzoic acid**, 2:4:6-triphenyl-, esters, prep., 3814; mechanism of hydrolysis, 3817.
- prep. and hydrolysis of esters of. Parts I, II, 3814, 3817.
- acids**, calculated bond lengths in, 4451.
- ethyl esters, additive effects of substituents on alkaline hydrolysis of, 3845.
- substituted, intramolecular hydrogen bonds and association and solubilities, 132.
- anhydride**, behaviour in sulphuric acid, 298.
- Benzoin reaction** with terephthalaldehyde, 1286.
- 1:2-Benzophenanthridine, 9:10-dihydro-7:8:2':3'-tetramethoxy-10-methyl-, attempted prep. by Pschorr reaction, 2534.
- Benzophenone chloride**. See Methylene dichloride, diphenyl-, 3089.
- Benzophenones**, hydroxy-, prep., 3982.
- Benzoquinone**, effect on sensitised polymerisation of styrene, 2822.
- Benzoquinone**, 2:5-dimethoxy-, prep. and isolation from *Polyporus fumosus*, 575.
- 2-methoxy-6-*n*-propyl-, formation of a diquinone from, 11.
- Benzo-2:1:3-selenadiazole**, reaction with phenyl-lithium, 1468.
- Benzo-2:1:3-thiadiazole**, reaction with phenyl-lithium, 1468.
- Benzothiazole**, 2-*p*-aminophenyl-6-methyl-, allegedly isomeric diazo-derivatives from, 2138.
- Benzothiazoles**, prep. as possible anthelmintics, 1030.
- Benzothiazoline**, 3-methyl-, prep. of substituted 2-methylene derivatives, 937.
- Benzo-1:2:4-triazines**, Bischler and Bamberger syntheses, 2326.
- Benzotriazole**, 5-amino-1-phenyl-, prep. of derivatives of, 337.
- Benzotropones**, hydroxy-. Parts I—III, 2233, 2238, 2244.
- Benzo-2:1:3-oxadiazole**, reaction with phenyl-lithium, 1468.
- Benzo-1:4-oxazines**, 2:3-dihydro-3-oxo-, prep. and reactions, 739.
- Benzoyl chloride**, *p*-nitro-, reaction with ethanol, 4121.
- nitrate, reactivity, 729.
- peroxide, decomposition in [α - $^2\text{H}_1$] *p*-xylene, 561.
- reaction with *N*-bromosuccinimide, 2529.
- Benzoylation** of *C*-methylphloracetophenones, 105.
- Benzyl alcohols**, conversion into aldehydes by means of dinitrogen tetroxide, 1110.
- molecular polarisation and association in benzene, 3793.
- cyanides, α -ethoxycarbonyloxy-, decarboxylation, 2475.
- nitrate, effect of changes in the nucleophilic reagent, 608, and in the structure of, 616, on the S_N and E_{CO} reactions.
- half-esters**, use in chain extension of fatty acids, 1097.
- phenyl ethers**, additive effects of substituent groups in, on halogenation of, 2772.
- radicals**, *p*-methyl-, reactivity, 561.
- Benzoylation** of *C*-methylphloracetophenones, 105.
- Berberine**, tetrahydro-, absolute stereochemistry of alkaloids related to, 3252.
- Betacoccus arabinosaceous*, structure of a modified dextran of, 2096.
- Bile acids**, prep. and antibacterial activity of basic derivatives of, 3449.
- Bischler synthesis** of 1:2:4-triazines, 2326.
- P*-*spiro*-Bis-1:2:3:4-tetrahydrophosphinolinium iodide, prep. and optical resolution, 4107.
- Biurets**, 1-aryl-, reaction with arenesulphonyl chlorides, 1497.
- Bond energy**, intramolecular, of substituted benzoic acids, 132.
- lengths, calculated, in cyclic compounds. Parts I—III, 1683, 1689, 4451.
- method of calculation of, for cyclic compounds, 1683.
- strengths, based on the reactions (a) $\text{Ph}\cdot\text{CH}_2 + \text{HI} \rightarrow \text{Ph}\cdot\text{CH}_2 + \text{I}_2$ and (b) $\text{Ph}\cdot\text{I} + \text{HI} \rightarrow \text{PhH} + \text{I}_2$, 115.
- thermochemical evaluation in carbon compounds. Part III, 115.
- Bonds**, ethylenic, activation by cationic catalysts. Part I, 1824.
- Boron chlorides**, phenoxy-, prep. and properties, 907.
- trichloride, fission of carboxylic esters by, 2959.
- reaction with chloro-alcohols and with cyclic ethers, 1470.
- reaction with hydroxy-esters, 2959.
- trifluoride, system with reactions in *n*-butanol and tri-*n*-butyl borate, 784.
- Borate ions, reaction with glucose derivatives, 1778.
- Borates, effect on separation of carbohydrates on charcoal columns, 4276.

- Boronic acids, alkyl- and aryl-, prep. of esters of, 2956.
n-Butyl difluoroboronite, prep., 784.
 Di-*n*-butyl fluoroboronate, prep., 784.
 Dichloroboronites, alkyl esters, prep. and stability, 3084.
 Fluoroboric acid, decomp. of diazonium salts of, 1035.
 Tri-*n*-butyl borate, system with boron trifluoride and *n*-butanol, reactions in, 784.
 Triphenyl borate, prep. and properties, 907.
Brewer's yeast, molecular structure of glycogen of, 867.
Bromination, of aromatic ethers by hypobromous acid, 2921.
 of *o*- and *p*-hydroxyaryl ketones, 18.
 See also Photobromination.
Bromine pentafluoride, density of liquid, 2779.
 Bromide ions, kinetics of interaction with alkyl bromides in acetone, 3180.
 kinetics of interaction with alkyl iodides in acetone, 3193.
 Bromides, organic, pyrolysis. Parts I—VI, 965, 973, 979, 2445, 2449, 2454.
 Hydrogen bromide, reaction with 2-*o*-hydroxymethylphenyl-2-phenylpropan-1-ol, 181.
 Hypobromous acid, bromination of aromatic ethers by, 2921.
 Potassium bromide-bromate solution, reaction with sulphur compounds, 3562.
Buta-1:3-diene, 2:3-dimethyl-, vapour pressure, 1391.
Butadienes, prep. *via* polyhalogeno-olefins, 3880.
 tetra-aryl-, confirmation of structure of, by absorption spectra, 4469.
Butadienecarboxylic acids, dimethyl-, prep., 3324.
Butane, 2-bromo-, pyrolysis, 2445.
*iso*Butane, low-temperature oxidation, 3029.
Butan-1-ol, acid-catalysed oxygen-exchange reactions with neopentyl alcohol, 4401.
 system with tri-*n*-butyl borate and boron trifluoride, reactions in, 784.
Butan-1-ol, 3:4-dimercapto-, prep. of polyhydroxy-derivatives of, 1292.
Butan-2-ol, oxygen exchange and Walden inversion in, 604.
Butea frondosa, isolation of palastinrin from, 1589.
But-1-ene, 1:1:3:3-tetraphenyl-, prep., 1824.
But-2-ene, 2:3-dimethyl-, vapour pressure, 1391.
Butenes, oxidation by chromic acid, 1360.
*iso*But-1-enyl radicals, formation from *isobut*-1-enylsilver. Part I, 716.
Butyl alcohols, molecular polarisation and association in benzene, 3793.
 See also Butan-1-ol, Butan-2-ol, and Propan-2-ol, 2-methyl-*tert*-.
Butyl acetate, acid hydrolysis, 1522.
 alcohol. See Propan-2-ol, 2-methyl-*tert*-.
 benzoate, hydrolysis in aqueous acetone, 2673.
 bromide, common-ion effect in hydrolysis of, 1899.
 pyrolysis, 2454.
 formate, kinetics of hydrolysis of, in aqueous acetone, 4020.
 "isoButylene α -chlorohydrin." See Propan-2-ol, 1-chloro-2-methyl-, 3267.
But-2-yne-1:4-diol, conversion into 2-deoxyribose, 4280.
 γ -Butyrolactone, α -aceto-, reaction with diazonium salts, 3470.
 γ -Butyrolactones, $\alpha\beta$ -di(arylhydrazono)-, isomerisation, 3969.
*iso*Butyrophene, α -acetyl-, conversion into ω -*isobutryl*-acetophenone, 3341.
- C**
- C=N group**, intensities of vibration bands of, 487.
Cafestol. Part I, 1983.
Calciferol, and its relatives. Part I, 4016.
 structure and light absorption, 320.
Calciferol, 4:4-dimethyl-, prep. from ergosterol, 2998.
Calcination of magnesium hydroxide, 51.
Calcium, quantitative analysis by paper chromatography in mixtures with Na, K, and Mg, 580.
Calcium ions, interaction with citrate buffers, 1038.
Carbostryla, 3:4-dihydro-, prep., 739.
Capsaicin, prep., 1025.
Carbasole, 1:2:3:4-tetrahydro-7-hydroxy-, prep., and confirmation of structure, 3475.
Carbazoles, prep. by cyclisation of di-(α -anthraquinonyl-amino)anthraquinones, 3399.
Carbazoles, hexahydromethoxy-9:11-dimethyl-, prep., colour reactions, and spectra, 3362.
 hydroxy-, and tetrahydrohydroxycarbazoles. Part III, 3475.
 4-hydroxy-, 4-methoxy-, and 1:2:3:4-tetrahydro-5-methoxy-, prep., 3475.
Carbohydrate nitrates. Part II, 3660.
 phosphates. Part I, 2505.
Carbohydrates, degradation by alkali. Parts X—XII, 1431, 1709, 1810.
 epimerisation, 3050.
 ionophoresis of. Part II, 1778.
 partially methylated, separation by ion-exchange, 3024.
 prep. from simpler substances. Part IX, 3843.
 separation on charcoal columns in presence of borate, 4276.
Carbohydrates, anhydro- ("anhydro-sugars"), of ethylene oxide type, action of Grignard reagents on. Part IV, 2013.
 deoxy- ("deoxy-sugars"). Parts XXVIII, XXIX, 1541, 2511.
*aldehydo*Carbohydrate phosphate, prep. of derivatives of, 2505.
Carbohydrate series, mechanisms of reactions in. Part I, 4419.
 β -Carbolines, 2-cyclohexylmethyl-, isomeric with alstyrene, prep., 2865.
Carbon, active, sorption of water vapour by, 1760.
 reactions with potassium perchlorate and iodate, 1797.
Carbons, amorphous, interaction of acrylonitrile with, 4344.
Carbon dioxide, reaction with carbon monoxide and oxygen on solid cuprous, nickel, and chromium oxides, 2726.
 monoxide, chemisorption on uranium and thorium dioxides, 3939.
 reaction with carbon dioxide and oxygen on solid cuprous, nickel, and chromium oxides, 2726.
 tetrabromide, linear rate of polymorphic transformation of cubic to monoclinic forms of, 3705.
 tetrachloride, magnetic susceptibility, 3911.
Carbon atom, saturated, mechanism of substitution at. Parts XLII—XLIX, 3169, 3173, 3177, 3180, 3187, 3193, 3196, 3200.
 compounds, thermochemical evaluation of bond strengths in. Part III, 115.
Carbon-carbon double bonds. See Bonds, ethylenic.
Carbon-sulphur double bond, spectroscopic properties, 3871.
Carbonium ions, extinction coefficients, 3098, 3104.
 formation by action of metal salts. Parts I, II, 206, 3104.
 rates of formation and decomp. in acidic aqueous *tert*-butanol, 791.
Carbonyl compounds, reaction with lead tetra-acetate, 4426.
 groups, sterically hindered, Wolff-Kishner reduction procedure for, 2056.
Carcinogenic activity, potential, new ring systems of. Part I, 4349.
Carissone, prep., 3027.
Carpamic acid, stereochemistry, 1563.
Caryophyllene series, X-ray studies in, 1254.
 β -Caryophyllene alcohol, X-ray study of chloride and bromide from, 1254.
Castor oil, conjugated acids from, 1069.
Cassaic acid, study of structure, 1045.
Catalysis, acid, evidence for, in decomp. of primary nitramines, 1655.
Catalysts, cationic, activation of ethylenic bonds by, 1824.
 semihydrogenation, in prep. of *cis*-fatty acids, 3510.
Catechol, 3:5-dimethyl-, red colour given with aqueous alkalis, 2089.
Cations, elution from Zeo-Karb 225, 2273.
Cell: Glass electrode|HCl|AgCl|Ag, 3696.
 Glass electrode|HCl(m_1)||HCl(m_2)|Glass electrode, 3701.
 Pt-H₂|HCl, MnCl₂|| β -MnO₂-Pt, E.M.F., 4054.
Cellulose, degradation by alkali, 1431.
 prep. of β -linked glucosaccharides from, by *Aspergillus niger*, 3734.
Cellululose, degradation by alkali, 1431.
Cellotetraose, degradation by alkali, 1431.
Cellulose of Chara, isolation, 281.
Chabasite, exchange equilibria in crystals of, 2838.
 sorption and reactivity of nitrous oxide and nitric oxide in, 757.

- Chaetomium aureum* Chivers, isolation of oosporein from, 2163.
- Chalkones** and related derivatives, prep., 166.
- Chara*, isolation of a cellulose from, 281.
isolation of a hemicellulose from, 282.
polysaccharides of. Parts I, II, 281, 282.
- Charcoal**, adsorption on, from aqueous solutions of fatty acids, 1493.
commercial, effect of ash on adsorption by, 4103.
- Chelate compounds** of heterocyclic acids with metals, stabilities.
Part I, in aqueous solution, 1175. Part II, in aqueous dioxan, 3467.
of transitional metals, exchange studies. Part I, 4098.
systems. Part III, 655.
- Chemical constitution** and fungicidal activity. Part IV, 4391.
and mesomorphism. Parts IV—VI, 236, 1412.
- Chemisorption** of ethylene, 2490.
of reducing gases on uranium and thorium dioxides, 3939.
- Chloranil**, system with benzene, association constants for equilibria in, 1202.
- Chlorin**, dehydrogenation to porphin, 3749.
prep., 3742.
- Chlorins**, number of extra hydrogen atoms in, 3749.
- Chlorination** of aromatic bases, additive compounds as intermediates, 24.
of paraffins, effect of molecular structure on relative rates, 285.
- Chlorine**.
Chloride ions, kinetics of interaction with alkyl bromides in acetone, 3173.
kinetics of interaction with alkyl chlorides in acetone, 3169.
Hydrochloric acid, activity coefficient, 3696, 3701.
aqueous, exchange reactivity, 3622.
Hydrogen chloride, systems with ethyl chloride—ethylene and isopropyl chloride—propene, equilibria in, 1784.
Hypochlorous acid, reaction with allyl acetate at constant pH, 2667.
Potassium perchlorate, reaction with carbon, 1797.
- Chlorohydrins**, kinetics of formation of. Part VII, 2667.
- Chlorophyll** and related substances. Parts I, II, 3742, 3749.
- Cholanolic acid**, 3-amino-7 α :12 α -dihydroxy-, prep. and antibacterial activity of esters of, 3449.
- Cholestanol**, 6-oxo-, acetate, absorption spectra of bromo-derivatives, 352.
- Cholestan-3 α -ol**, methylation, 1375.
- Cholestan-6-ones**, 3 β :5 α -diacetoxy-7-bromo-, prep. and absorption spectra of 7-epimers of, 352.
- Cholest-4-ene**, 6 β -methoxy-, prep. and reactions, 2876.
- Cholest-5-ene**, 3 α -amino-, prep. from cholesteryl toluene-*p*-sulphonate, 986.
4 β -methoxy-, prep. and reactions, 2876.
- Cholest-4-en-3-one**, 4-bromo-, prep. and ultraviolet spectrum, 3549.
4-chloro-, prep. and ultraviolet spectrum, 3549.
- Cholesterol**, bromide, kinetic study of acetolysis of, 679.
toluene-*p*-sulphonate, kinetic study of acetolysis of, 679.
kinetics of methanolysis of, in presence of methoxide ions, 1891.
reaction with liquid ammonia, 986.
- epi***Cholesterol**, bromide, kinetic study of acetolysis of, 679.
toluene-*p*-sulphonate, kinetic study of acetolysis of, 679.
methanolysis, 2876.
- Cholesterylamine**, configuration, 690.
- Chromatography**, of gases and vapours. Part V, 1480.
paper, analysis of inorganic compounds by. Parts VII, VIII, 4332, 4337.
new technique and its application to separation of thionic acids, 4337.
of inorganic compounds, multiple-spot phenomenon in, 4332.
of uronic acids, 3554.
quantitative analysis of mixtures of sodium, potassium, magnesium, and calcium by, 580.
- Chromium phosphates**, existence in the system Cr₂O₃-P₂O₅-H₂O, 360.
trioxide, exchange reactions with oxygen, 3824.
phase-diagram and ion-exchange studies of system with phosphoric oxide and water, 360.
reactions of carbon monoxide and dioxide and oxygen on, 2726.
- Chromate process for separation of lanthanons and yttrium, mechanism, 2409.
Chromic acid, oxidation of olefins by, 1360.
- Chromophores**, aromatic, interaction between, in polyphenyls, 2552.
- Chrysanthemumdicarboxylic acid**, possible route to, 779.
- Chrysene**, prep., 4052.
- Cicutoxin** and α -anthotoxin. Part II, 1770.
(\pm)-**Cicutoxin**, prep., 1770.
- Cinnamaldehydes**, mononitro-, prep., 1384.
- Cinnamamide**, α -cyano-*o*-nitro-, supposed dihydroindole reduction products, 203.
- Cinnamic acids**, substituted α -phenyl-, stereochemical configurations, 3445.
- Cinnolines**, and other heterocyclic types in relation to the chemotherapy of trypanosomiasis. Part X, 4236.
Part XXXIV, 2100.
- Cinnolines**, 4-amino-, quaternisation, 4236.
5-, 6-, and 7-amino-, prep., 2100.
5-, 6-, and 7-hydroxy-, prep., 2100.
- Citraconic anhydride**, interconversion with itaconic anhydride in amine solutions, 1647.
- Citric acid**, reaction with calcium ions with buffers of, 1038.
Cladonia alpestris, alkali-soluble polysaccharides from, 651.
- Coal tar**, phenols from, red colour given with aqueous alkalis, 2089.
- Coals**, carbonised, infrared spectra, 752.
infrared spectra, 744.
- Codeimethines**, structure, 3237.
- Colchicine** and related compounds. Part XIV, 3846.
- Collision diameters** of flexible hydrocarbon molecules in the vapour phase, 2524.
parameters of C₆—C₉ hydrocarbons in the vapour phase, 1141.
- Colocasia antiquorum*, polysaccharides, 2441.
- Colocass**. See *Colocasia antiquorum*, 2441.
- Colour** of merocyanines, effect of environment on, 3313.
- Colupulone**, isolation from hops, degradation, and structure, 174.
- Common-ion effect** in hydrolysis of *tert*-butyl bromide, 1899.
- Complex formation**, intermolecular, between iodine or iodine cyanide and organic molecules: vibrational spectra, 471.
detection by refractive-index measurements in solution, 67.
investigation by partition between vapour phase and solution, 3889.
- ions**, formation. Part III, 1347.
of analytical importance, absorption spectra, 137.
- Complexes**, hydrogen-bonded, electric dipole moments, 3901.
investigation by partition, 3889.
of metals, application of theory of corresponding solutions to stability of, 3457.
- "Compound S,"** 16 α -hydroxy-, prep. of acetate of, 4383.
- Conductivity**, in aqueous solutions, use to calculate molecular association of carboxylic acids, 2500.
of anhydrous aluminium bromide in ethyl bromide solution, 452.
of antimony and phosphorus trifluorides, 279.
of silver nitrate in non-aqueous and mixed solvents. Parts II, III, 1208, 2797.
of solutions of dinitrogen tetroxide in sulphuric, selenic, and phosphoric acids, 3141.
of sulphuric acid, 3300.
- Conessine**, constitution. Part VIII, 986.
- Conformation**, steric, effect on electronic spectra of conjugated systems, 3754.
effects on spectra of alicyclic ethylenic ketones, 3766.
- Conjugated systems**, effect of methyl groups on *K*-bands of, 2557.
effects of steric conformation on electronic spectra of, 3754.
- Conjugation**, relation to configuration in diphenyl derivatives. Part V, 2708.
- Copolymerisation** of L-lysine, L-glutamic acid, and L-tyrosine, 232.
- Copper**, anodic dissolution of, 1702.
isotopic exchange of, between cupric nitrate and, 1401.
Cupric nitrate, isotopic exchange of copper between copper and, 1401.
Cuprous oxide, reactions of carbon monoxide and dioxide and oxygen on, 2726.

- Coprosma* genus, chemistry of. Part X, 3298.
rhamnoides, colouring matters from, 3298.
Coprostan, derived as a result of hydrogenating steroid 5:6-double bonds, 1365.
Coprostan-3-ols, methylation, 1375.
 (±)-**Cordycepos**, prep., 3405.
Corresponding solutions, theory of, application to stability of metal complexes, 3457.
Cortisone, simple analogues of. Part IV, 1126.
 studies in synthesis of. Parts IX—XII, 443, 447, 2017, 2807.
Cortisone, 16 α -hydroxy-, prep. of acetate of, 4383.
Corynanthrine. See *Alstyrine*, 2865.
Coumaran-2-one, 7-acetyl-4:6-dihydroxy-3:5-dimethyl-, prep., 2166.
Coumaran-3-ones, 2-benzylidene-, ring expansion to give flavones, 860.
isoCoumarin, (–)-3:4-dihydro-8-hydroxy-3-methyl-, identity with mellein, 2871.
Coumarins, 3-alkylsulphonyl-, prep., 3296.
Cow's milk, prep. of a crystalline xanthine oxidase from, 1100.
 [*o*-³H]*p*-Cresol, hydrogen isotope exchange reactions, 3609, 3622.
Crotonaldehydes, methyl-, prep., 3334.
Crotonic acid, $\alpha\beta$ -dimethyl-, prep., 3331.
Crystallinity and infrared spectra. Parts I—III, 2428, 2431, 3270.
 effect on rhythmic precipitation, 1180.
Crystals, mixed liquid. Part II, effect of structure on transition temperatures of, 4305.
 molecular, theory of light absorption by, 539.
 organic, photo- and semi-conductance in. Parts I, II, 1728, 1734.
Crystal structure of rongalite, 3070.
Cumene, products formed from phenolic inhibitors during autoxidation of. Part II, 2753.
Cyanamides. Part VIII, 1497.
isoCyanates, aryl, prep., 1497.
isoCyanic acid, 2:4:6-tri-iodophenyl ester, as reagent for hydroxy- and amino-groups, 3322.
Cyanine dyes, containing a perimidine ring, prep., 2394.
Cyanines, complex, derived from 1:3-dithiacyclopentan-4-one, prep., 949.
meroCyanines, attempts to prepare sulphide analogues of, 927.
 derived from thio-oxindole. Parts III, IV, 28, 2537.
 influence of environment on colour of, 3313.
 trinuclear, containing the thio-oxindole nucleus, prep., 28.
 prep., 2394.
meroCyanines, diazadimethin-, isomerism of, 2537.
meroCyanine dyes, containing a perimidine ring, prep., 2394.
 related to 1:6-dioxajulolidine, prep., 398.
Cyanoethylation, novel method of. Part III, mechanism, 3628.
Cyano-groups, intramolecular interaction with γ -tertiary amino-groups, 2371.
Cyclic compounds, calculated bond lengths in. Parts I—III, 1683, 1689, 4451.
Cyclodehydration of 2-anilino- and 2-*p*-toluidino-pent-2-en-4-one, kinetics in sulphuric acid, 2351.
 of anils. Parts I, II, 2351, 2358.
Cyperone, structure. Parts II—IV, 525, 528, 2423.
Cyperones, natural and synthetic, comparison of structure, 528.
 stereochemistry, 3027.
 α -**Cyperone**, alkali-catalysed isomerisation and autoxidation, 525.
 (+)- α -**Cyperone**, natural, and its enantiomorph and an epimer, prep., 2423.
Cystine, decomp. in acid solution in presence of indoles, 1636.
L-**Cystinebis-3-phenylhydantoin**, reaction with sodium in liquid ammonia, 3010.
Cytidylic acids a and b, structure, 2855.
Cytosine, 3-methyl-, acylation, 855.
Cytotoxic activity, latent, prep. of compounds possessing, 3110.
- D**
- Dammar resin**, chemistry, 3132.
Dealkylation, by hydrogen bromide in ether, of esters of phosphorous, phosphoric, and phosphoric acid, 1978.
Deca-2:4-dienoic acids, *S*-benzylthiuronium salts, *p*-bromophenacyl esters, isobutylamides, and methyl esters, prep. and stereochemistry, 1007.
Deca-2:4-dienols, prep. and stereochemistry, 1007.
trans-A/B-Decalin system, prep., 3348.
Decane-2:3:8:9-tetraol, 2:3:8:9-tetramethyl-, prep. and pinacol rearrangement, 1781.
bicyclo[5:3:0]Dec-7-en-9-ones, prep. from cyclohexanones, 3151.
Deformation, molecular, in 3:4:5:6-dibenzophenanthrene, 1819.
Dehydrogenation of *cis*-hexahydrophthalimidine, 3525.
 "Dehydrothioparatoluidine." See Benzothiazole, 2-*p*-amino-phenyl-6-methyl-, 2138.
Demethylation of 2'-methoxyflavones, rearrangement in. Part II, 4249.
Depolymerisation of *N*-substituted ethyleneimines, 2577.
Dextran, modified, of *Betacoccus arabinosaceus*, 2096.
Di-[2-(*N*-2'-aminobenzylformamido)propenyl] disulphide, disproportionation, 2390.
Dianthracene, structure and ultraviolet spectrum, 2961.
1:1'-Dianthraquinonylamine, prep. and colour reactions of derivatives of, 3399.
Diarsine ring, eight-membered, prep. of compounds containing, 405.
Diaraines, cyclic. Parts II—IV, 401, 405, 411.
 1:4-disubstituted diethylene, prep., 401.
Diaryls, mechanism of synthesis by Ullmann's method, 3081.
Diastereoisomers, partially labile, effect of temperature upon equilibrium between. Part I, 4152.
2:3 α -Diazaindene, prep. and acetylation, 2834.
Diazo-derivatives, allegedly isomeric, from 2-*p*-aminophenyl-6-methylbenzothiazole, 2138.
Diazoacetic acid, ethyl ester, addition to sorbic esters, 779.
 n -*iso*-**Diazoate transformation**, Arrhenius parameters, 3154.
Diazonium fluoroborates, mixed, decomp., 1035.
Diazonium cations, characteristic infrared absorption, 276.
 salts, reaction with α -aceto- γ -lactones, 3470.
 "Diazoperbromides," prep. and infrared spectra, 1630.
 thermal decomp., 1274.
Dibenzacridines, 5-amino-, prep., and relation to chemotherapy of tuberculosis, 4309.
2:2'-Dibenziminazolyis, prep., 534.
 unsymmetrically substituted, prep., 1079.
2:3-6:7-Dibenzofluoranthene, prep., 1190.
1:2-4:5-Dibenzocyclohepta-1:4-dienes, 2':3':2'':3''-tetramethoxy-, and related compounds, prep., 2896.
3:4-5:6-Dibenzocyclohepta-3:5-diene-1'-carboxylic acid, prep., and configuration, 2708.
1:2-5:6-Dibenzocyclooctadiene, tetramethoxy-, prep. of derivatives of, 2888.
4:5-6:7-Dibenzocycloocta-4:6-diene-1:2-dicarboxylic acids, prep., and configuration, 2708.
1:2-5:6-Dibenzocyclooctatetraene, tetramethoxy-, prep., 2888.
1:2-5:6-Dibenzocyclooctatriene, tetramethoxy-, prep. of derivatives of, 2888.
1:2-3:4-Dibenzophenanthrene, prep. by Rapson triphenylene synthesis, 4479.
3:4-5:6-Dibenzophenanthrene, molecular deformation in, 1819.
3:4-5:6-Dibenzophenanthrene, 9:10-dihydro-, optically active, prep., 1242.
4:5-9:10-Dibenzopyrene-3:8-quinones, prep. by cyclisation of 3-*aroylmes*obenzanthrones, 849.
8H-Dibenzo[a, g]pyridocoline hydrochloride, 5:6:13:13a-tetrahydro-2:3:10:11-tetrahydroxy-, prep. in attempts to prepare tetrahydroworenine, 79.
Dibenzothiophen, 1:2:3:4:5:6:7:8-octahydro-, prep., 1386.
Dibenzotropone, hydroxydimethoxy-, prep. 2244.
Dictamninc acid, structure, 4284.
Diene series, reactions in, 4347.
Dienes, conjugated, *p*-phenylazomaleinani as a reagent for, 2970.
Diffusion of potassium laurate in water, studied by Gouy interference method, 2916.
 α -**Diketone**, bridged, hydrolysis, 2054.
 β -**Diketones**, condensations of, related to prep. of steroids, 3341.
Dimerisation, free-radical, of arylacetic acids and arylacetones, 4229.
 of esters and ketones, 349.
Dimethyl ether, chloro-, reaction with ethanol and with ethoxide ions, 3641.
Dinaphthyls, 2:2'-bridged, optical stabilities, 1242.

- Dinitriles**, saturated and unsaturated dialkyl- and alkyl-aryl-, prep. and stereochemistry, 423.
- 1:3-Diones**, cyclic, 2-acyl derivatives of. Part II, 2860.
- pseudo-Diosgenin**, degradation to (–)- α -methylglutaric acid, 637.
- Dioxan**, aqueous, stabilities of metal chelate compounds of heterocyclic acids with, 3467.
- Diphenyl**, relation between configuration and conjugation in derivatives of. Part V, 2708.
- Diphenyl, 2:3-dihydroxy-**, prep. and reactions, 4435.
- tetrahydroxytetramethyl-, isolation of a quinone derivative of, from coal-tar phenol, 2089.
- 2:3:4-trihydroxy-**, prep. and reactions, 4435.
- Diphenyls**, 2:2'-bridged, optical stabilities, 1242.
- mechanism of synthesis of, by Ullmann's method, 3081.
- o*-substituted, steric effects on ultraviolet spectra of, 3776.
- Diphenyls, 4-amino-**, mesomorphism of anils of, 4359.
- dimethoxy-, condensation with succinic anhydride, 2199.
- Diphenyl series**, orientation effects in. Part XIV, 1274.
- polyhydroxy-, synthetic and oxidative studies in. Part I, 4435.
- Diphenylamine**, prep. of derivatives of, 1278.
- Diphenylamine, 4-acetyl-**, prep., 1278.
- Diphenylaminocarboxylic acids**, *N*-benzoyl-, unstable optical activity, 145.
- Diphenyl-4-carboxylic acids**, 4'-*n*-alkoxy-, and simple esters, mesomorphic properties, 1412.
- Diphenylene**, heat of combustion and molecular structure, 1188.
- 1:2-7:8-Dipthaloylcarbazole**, prep. and colour reactions of derivatives of, 3399.
- Dipiperitones**, structure, 2227.
- Dipole moment**, electric, of hydrogen-bonded complexes, 3901.
- of 1-methylpyrrolid-2-one, 1382.
- Dipyrazolyls**, prep. and properties, 1205.
- Diquinolincjuline**, prep. of derivatives of, 393.
- Diquinones**, mechanism of formation of, 11.
- Directing effects** in inorganic substitution reactions. Parts I, II, 4456, 4461.
- Displacements**, nucleophilic, solvent participation in. Part I, general considerations, 4114. Parts II, III, 4121, 4130.
- Dissociation**, electrolytic, influence upon rates of reactions. Part I, 1899.
- Dissociation constants** of dihydrolysergic acids, 1626.
- Dissolution**, anodic, of copper and mercury, 1702.
- 1:3-Dithiacyclopentan-4-one**, prep. of complex cyanines related to, 949.
- Dithiobiurets**, 1- and 1:5-substituted, prep. and trypanocidal activity, 796.
- cyclic derivatives, prep. and trypanocidal activities, 803.
- Parts I, II, 796, 803.
- Dithiocarbamic acid**, substituted, ammonium salts and methyl esters, prep. and conversion into dithiobiurets, 796.
- Dithiols**. Parts XV–XVIII, 1292, 1299, 1302, 1307.
- Dithymidine dinucleotide**, containing a 3':5'-internucleotidic linkage, prep., 2632.
- Docos-2-enoic acid**, 2:4-dimethyl-, prep. and reactions, 1547.
- Dodeca-2:4:8-trienamides**, *N*-isobutyl-, prep. and relation to sanshoöl I, 4244.
- Dyes**, ionic, containing sulphur, experiments on synthesis of, 933.
- E**
- E_{CO} reaction**, in organic nitrates, 608, 616.
- trans-Effect**, in inorganic substitution reactions, hypothesis to explain, 4456.
- Effects**, directing, in inorganic substitution reactions. Parts I, II, 4456, 4461.
- inductive, correlation with infrared spectral shifts, 4221.
- of uncharged ligands in platinum(II) complexes, 4461.
- mesomeric, correlation with infrared spectral shifts, 4221.
- orientation, in the diphenyl series. Part XIV, 1274.
- Eicos-2-enoic acids**, methyl-, prep. and reactions, 1547.
- Eicos-11-enoic acid**, natural, evidence for *cis*-configuration, 1097.
- Electric moment**. See Dipole moment.
- Electrode**, glass, precise measurements with. Parts I, II, 3696, 3701.
- potentials**, of manganese α -, γ -, and δ -oxides, 4057.
- relative, of synthetic manganese dioxides, 4054.
- Ellipsoids**, electro-optical polarisability tensor, for pyridine, quinoline, and isoquinoline, 2750.
- Enediols**, oxidation with selenium dioxide, 579.
- Enol-lactones** of γ -keto-acids, reaction with indolylmagnesium iodide, 2481.
- Enta acid**. See Ethylenediaminetetra-acetic acid.
- Entropy** of reaction of silver and hydrogen ions with aliphatic amines, 1347.
- Epernic acid**, structure, 658.
- Ephedrine**, magneto-optic rotations of isomers of, and of their hydrochlorides in solution, 4150.
- Epimerisation** of carbohydrates, 3050.
- Equilibrium constants**, use of, to calculate thermodynamic quantities. Part II, 1784.
- Erbium**, enrichment of crude, 335.
- Ergocalciferol**, Oppenauer oxidation, 370.
- Ergosta-8:14-dien-3 β -ol**, 22:23-dibromo-11-oxo-, acetate, and related compounds, prep., 1170.
- 9 β -Ergostanol**, reactions and derivatives of, 3421.
- Ergosterol**, 4:4-dimethyl-, prep., and conversion into 4:4-dimethylcalciferol, 2998.
- Erythroaphin-f β** , prep. from erythroaphin-sl, 954.
- Erythroaphin-sl**, addition reactions, and its conversion into erythroaphin-f β , 954.
- Erythroaphins**, course of substitution reactions of, and stereochemistry of, 1144.
- structure, 959.
- Erythropleum alkaloids**, cassaic acid from, 1044.
- L-Erythrulose**. See L-glyceroTetralose, 2699.
- Esters**, fission by boron trichloride, 2959.
- free-radical dimerisation, 349.
- kinetics of alkyl-oxygen fission in hydrolysis of. Parts II–IV, 2010, 2673, 4020.
- kinetics of hydrolysis of, in aqueous acids, 3106.
- infrared spectra, 2170.
- mechanism of hydrolysis of, by sulphuric acid, 298.
- tracer studies on hydrolysis of, in acid solution. Parts I, II, 1354, 1522.
- Ester-nitriles**, infrared spectra, 2170.
- Ethane**, 1:2-di-2'-quinolyl-, prep. of related compounds, 2436.
- Ethanol**, reaction with acid chlorides, 4121.
- reaction with chlorodimethyl ether, 3641.
- Ethers**, aromatic, directive effects of substituents in, on bromination of, by hypobromous acid, 2921.
- cyclic, reaction with boron trichloride, 1470.
- phenolic, halogenation. Part XVII, 2772.
- Ethoxide ions**, reaction with chlorodimethyl ether, 3641.
- Ethyl acetate**, kinetics of hydrolysis of, in acid solution, 3106.
- bromide, conductivity of anhydrous aluminium bromide in, 452.
- chloride, system with ethylene and hydrogen chloride, equilibria in, 1784.
- cyanide, 2-diethylamino-, reaction with arylamine salts, 3628.
- diazoacetate, addition to sorbic esters, 779.
- Ethylamines**, entropy of reaction with silver and hydrogen ions, 1347.
- Ethylamines**, 2-(3:4-dihydroxyphenyl)-, *N*-substituted, prep., 3926.
- Ethylene**, approximate potential function for out-of-plane vibrations of, 1813.
- catalytic hydrogenation at a nickel surface. Parts I, II, 2490, 2496.
- chemisorption on nickel, 2490.
- effect of solid surfaces on propagation of flame through mixtures of, with air, 195.
- mechanism of hydrogenation of, at a nickel surface, 2496.
- system with ethyl chloride and hydrogen chloride, equilibria in, 1784.
- Ethylene**, chlorotrifluoro-, prep. of polyfluoroalkanes from, 4291.
- 1:1-diphenyl-, dimerisation, 1824.
- Ethylenes**, 1:2-disubstituted, polymerisation, 2295.
- Ethylene glycol**, addition compound with glyoxal, prep., 1036.
- [¹⁴C]Ethylenediamine, exchange with "labile" metal-ethylenediamine complexes, 4098.

[¹⁴C]Ethylenediamine dihydrochloride, prep. from [¹⁴C]-ethanol, 2521.
Ethylenediaminetetra-acetic acid, alkali lanthanon salts, solubilities, 451.
 and its sodium salts, infrared spectra, 1766.
 use in separation of lanthanons. Part V, 451.
Ethylene-1,2-dicarboxylic acid, *trans*-1:2-dicyano-, diethyl ester, prep. from cyanoacetic acid, 515.
Ethyleneimine, kinetics and mechanism of polymerisation, 2564.
Ethyleneimines, *N*-substituted, polymerisation and depolymerisation, 2577.
Ethylenic systems, catalysed reactions of simple aromatic compounds with. Part III, 3919.
 conjugated, infrared absorption, 1874.
Ethynyl group, protection during reduction, 3558.
Eudemol, conversion into carisone, 3027.
Euphol, constitution and stereochemistry, 876.
Euphorbia resins. Part IX, 2194.
Euphorbol, isomerisations in, 2190.
Exchange reactions, and magnetic susceptibilities, of complex salts. Parts II, III, 3431, 3435.
 isotopic, of alkyl bromides in acetone, order and mechanism, 1475.
 of halogen, 3200.
 of hydrogen isotopes, kinetics. Parts II-IV, 3609, 3619, 3622.
 of nickel complexes, 3435.
 of oxygen between alcohols and water. Parts I, II, 791, 4401.
 of solid oxides. Parts VI, VII, 2726, 3824.

F

Farrerol, isolation, and identity with 5:7:4'-trihydroxy-6:8-dimethylflavanone, 3740.
Faujasite, sorption and reactivity of nitrous oxide and nitric oxide in, 757.
Felspar, synthetic, lamellar habit of, 2480.
Ferrocene derivatives. Part II, 367.
Ferrocenes, arylation, 367.
Ferrocen reaction, 1-2'-pyridylisoquinoline in, 430.
Finkelstein reaction, 3169, 3173, 3177, 3180, 3187, 3193, 3196, 3200.
Fischer indole reaction, 2519.
Flame, effect of solid surfaces on propagation through ethylene-air mixtures, 195.
Flavanone, optically active, from leaves of *Rhododendron farrerae*, Tate, 3740.
 5:7:4'-trihydroxy-6:8-dimethyl-. See Farrerol, 3740.
Flavanones, hydroxylation in the 3-position, 2503.
 infrared spectra, and hydrogen-bonding in, 655.
Flavanones, 2'-hydroxy-, supposed, shown to be *o*-hydroxyacetophenones, 166.
 2'-methoxy-, supposed, 166.
Flavanthrone, calculation of bond lengths in, 1689.
Flaviolin, proof of identity with 2:5:7-trihydroxy-1:4-naphthoquinone, 2782.
 tri-*o*-methyl-, prep., 2782.
Flavone, 5:6-dihydroxy-3:7-dimethoxy-, prep. and conversion into 6-hydroxytetra-*O*-methylgalangin, 3908.
Flavones, infrared spectra, and hydrogen bonding in, 655.
 prep., by ring expansion of 2-benzylidene coumaran-3-ones, 860.
Flavones, 2'-methoxy-, rearrangement in demethylation of. Part II, 4249.
 trimethoxy-, rearrangement in demethylation of, 4249.
isoFlavones, 5:7:4'- and 5:7:2'-trimethoxy-6-methyl-, prep., 105.
Flavonol, 7:8:3'4'-tetramethoxy-, catalytic reduction, and conformation of the product, 3384.
Flavonols, of quercetagenin series, prep., 3908.
 prep., 862.
Fluoranthenes, disubstituted, orientation, 1233.
Fluorene, 2-acetamido-, chlorination, 3560.
 2-methoxy-, Friedel-Crafts reaction, 2686.
 9-trimethylsilyl-, bromination, 1420.
Fluorenes, 2-amino-, mesomorphism of anils of, 4359.

[⁹⁻¹⁴C]Fluorene, prep., 4216.
Fluoren-9-ols, 9-alkyl-, conversion into 9-alkylphenanthridines, 1634.
Fluorenone-2-carboxylic acid, 7-methoxy-, prep., 2686.
Fluorenones, 2-amino-, mesomorphism of anils of, 4359.
9-Fluorenyl peroxides, 9-phenyl-, 2550.
Fluorescence of anthracene, quenching by solvent, 4394.
Fluorine compounds, heterocyclic. Part II, 1283.
 organic. Part IV, 2190.
 organometallic and organometalloidal. Part XII, 563.
Fluorides, complex, formation in fluorosulphonic acid, 433.
 of rhodium and iridium, prep., 3291.
Oxyfluorides, complex, of septavalent rhenium, 602.
Potassium hydrogen difluoride, reaction with potassium hexanitro-rhodate- and -iridate(III), 3291.
Trifluoromethyl compounds, aromatic, characteristic infrared absorption frequencies, 1311.
Formamide, dimethyl-, reaction with lithium alkenyls, 3334.
Formazans, prep. from α -aceto- γ -lactones, 3470.
Friedel-Crafts reactions, with methyl *m*-tolyl ether, 3417.
Fructosans, degradation in aqueous solution, 1106.
 studies on. Part VI, 1106.
D-Fructose, 1-deoxy-1-*p*-tolylamino-, attempts to characterise, 3674.
 4-*O*-methyl-, degradation by alkali, 1810.
L-Fucofuranosides, α - and β -methyl, prep., 2054.
Fumaric dinitriles, prep., 423.
Fungi, chemistry of. Parts XXIV, XXV, 11, 2163.
 higher, chemistry of. Part V, 4270.
 constituents of. Part IV, 575.
Fungicidal activity and chemical constitution. Part IV, 4391.
Furans, tetra-aryltetrahydro-, confirmation of structure of, by absorption spectra, 4469.
Furano(3':2'-3:4)quinolines, prep., 4284.

G

aldehydo-D-Galactose, prep. of derivatives of, 2505.
D-Galactose, 2:3-di-*O*-methyl-, characterisation, 1136.
 6-*O*- β -D-glucuronosyl-, isolation from gum ghatti, 1160.
 α -D-Galactoside, methyl 4:6-*O*-benzylidene-, characterisation, 1136.
Galactosylamines, *N*-aryl-, transglycosylation, 193.
Gallium.
 Tetrabromogallate(III) ion, Raman spectrum, 2655.
Galloflavin. Part II, mechanism of formation from gallic acid, 833.
isoGalloflavin, structure, 833.
Gases, chromatography of. Part V, 1480.
 inert, salting out of, 3655.
Geraniol, structure, 2830.
Germanium, ion-exchange in solution with oxalate, 4415.
 purification, 1604.
 tetrachloride, system with arsenic trichloride, 1604.
 Germanate solutions, containing sulphate and orthophosphate, ion-exchange studies of, 1444.
 Germanium, quadrivalent, studies in chemistry of. Parts II, III, 1444, 4415.
 Pentagermanate ion, depolymerisation with change of pH, 1444.
Girard- π compounds, depolarisation potentials, 1516.
Girard reagents, reactions with, 4025.
Glass electrode, precise measurements with. Parts I, II, 3696, 3701.
D-Glucitol 6-(3:4-dimercaptobutyl) ether, prep. as fully acetylated derivative, 1292.
D-Glucopyranosides, α - and β -methyl-, acid-catalysed hydrolysis, 4419.
 α - and β -phenyl-, acid-catalysed hydrolysis, 4419.
Glucosaccharides, β -linked, prep. from cellobiose by *Aspergillus niger*, 3734.
D-Glucosaccharinic acids, prep. from 4-*O*-methyl-D-glucose or -fructose, 1810.
D-Glucosaminic acid, lactones, 1831.
 α -1:4-Glucosans. Part III, 867.
 reaction with iodine, 3016.
Glucose nitrates, prep., 4232.
D-Glucose, ionophoresis of pyranose and furanose derivatives of, 1778.

D-Glucose, 4:6-*O*-benzylidene, degradation by alkali, 1709.
 2-*O*-methyl-, improved prep., 3024.
 4-*O*-methyl-, degradation by alkali, 1810.
aldehyde-D-Glucose, 2-deoxy-, prep., 2505.
Glucoside of α -hydroxyglucose, structure, 904.
 α -**D-Glucoside**, methyl, solubility in, and heat of crystallisation from, aqueous solution, 2714.
 methyl 4:6-*O*-benzylidene-, prep. of esters, 3660.
 β -**D-Glucoside**, 3:4-dimercaptobutyl, prep., 1292.
O- β -**D-Glucoside** of 1:3-dimercaptopropan-2-ol, prep., 1299.
Glucosylamine, tetra-*O*-acetyl-*N*-aryl-, transglycosylation, 193.
Glucuronic acids, *O*-methyl-, prep. and reaction with periodate, 2281.
Glutamic acid, γ -methylene-, prep., 3636.
L-Glutamic acid, polymerisation and copolymerisation, 232.
L-Glutamic acid, poly-(γ -*L*-glutamyl)-, prep. and relation with acid of bacterial origin, 517.
Glutamine, γ -methylene-, prep., 3636.
Glutamyl peptides, rearrangement, 259.
Glutaric acid, ($-$)- α -methyl-, configurational relationship with *pseudohocogenin* and *pseudodiosgenin*, 637.
acids, isolation and characterisation as *p*-phenylazoanils, 2968.
Glycol reaction, 2511.
Glycols, conversion into 2-deoxy-carbohydrates, 2511.
Glycerides, $\alpha\beta$ -unsaturated, prep., 1802.
Glycerol iodides, prep., 1383.
Glycerol iodohydrin. See **Glycerol iodides**, 1383.
Glycine, *N*-thiocarbonyl-, and its ethyl ester, prep., 4388.
Glycogen of baker's yeast, isolation of, and linkages in, 355.
 of brewer's yeast, molecular structure, 867.
Glycol, new prep. of monoesters of fatty acids of, 1043.
Glycols, $\alpha\beta$ -acetylenic ditertiary, prep. and pinacol rearrangement of, 1592.
 alicyclic. Part XIII, 2383.
Glycosylamine tetra-acetates, *N*-aryl-, isomeric, prep. and structure, 185.
Glycosylamines, *N*-aryl-, transglycosylation, 189.
 substituted, stability in aqueous and non-aqueous solvents, 1541.
N-substituted. Part V, 3674.
Glycyrrhetic acid, configuration of carboxyl group in, 3126.
Glyoxal, addition compound with ethylene glycol, 1036.
Glyoxaline, iodination, 1238.
Glyoxaline, 4:5-dihydro-1-(4:5-dihydroglyoxalin-2-yl)-2-mercapto-, probable identity with Jaffe's base, 4443.
Glyoxalines, prep., 1834.
 purines, and pyrimidines. Part I, 1834.
Glyoxalines, 1:5-disubstituted 2-mercapto-, prep. from α -amino-acids, 1695.
 2-mercapto-. Part IX, 1695.
 tetrahydro-2-oxo, prep., and ultraviolet spectra, 3010.
Glyoxalium salts, 2-alkylthio-4:5-dihydro-, prep., 1389.
Glyoxalino[1:2-*a*]pyridine, 2:3-dihydro-, quaternary derivatives, as potential tumour inhibitors, 2021.
Glyoxalino(2':1'-2:3)thiazolium salts, 4':5'-dihydro-, prep. and conversion into 2-iminothiazoline bases, 2943.
Gold-hydrogen electrodes, processes at, 3489.
Gouy method for determination of magnetic susceptibility of solids, improvements in, 3911.
Grignard compounds, lowering of vapour pressure of solutions of, in diethyl ether, 108.
reagents, action on anhydro-sugars of ethylene oxide type. Part IV, 2013.
 action on succinic anhydride to give β -aroylpropionic acids, 456.
Griseoviridin, desulphurisation, acid hydrolysis, and ozonolysis; partial structure of two groupings in, 4264.
 Parts I, II, 4260, 4264.
 proposed formula for, and functional groups in, 4260.
Grote test, refinement, 4443.
Guanosine, deoxy-, prep. of mononucleotides derived from, 808.
Guanosine phosphates, deoxy-, prep., 808.
Gum, of *Acacia cyanophylla*, composition, 269.
 of *Acacia karroo*, structure, 1428.
Gums and mucilages, isolation of oligosaccharides from. Part IV, 583.
Gum ghatti, composition of, and structure of two aldobiouronic acids derived from, 1160.
Gum myrrh, constitution. Part II, 3001.

H

H₀, the acidity function, for solutions of trifluoro- and trichloro-acetic acid in water, 1218.
Halogenation, aromatic, by hypohalous acids, kinetics and mechanism. Part II, 2921.
 of benzyl phenyl ethers, 2772.
 of diphenylmethane derivatives, 83.
 of phenolic ethers and anilides. Part XVII, 2772.
Halogens.
 Halide ions, reactions with hydrogen peroxide, 273.
 Halides, inorganic non-metal, reaction with 1:1:1:3:3:3-hexachloropropan-2-ol, 505.
 organic, effect of solvent on ionisation of. Part III, 3098.
 Hypohalous acids, kinetics and mechanism of aromatic halogenation by. Part II, 2921.
 Polyhalogeno-compounds, oxidation. Part I, 2151.
Hammett's substituent constants for *ortho*-substituents in 2-aryloxyethylidimethylsulphonium iodides, 1049.
Hardwoods, chemistry of extractives from. Parts XXI—XXV, 658, 1117, 1333, 1338, 2948.
Heat capacity of nickel carbonyl between 90° and 270° K, 100.
Heats of combustion and molecular structure. Part III, diphenylene, 1188.
 crystallisation of sucrose and methyl α -*D*-glucoside, 2714.
 esterification of phosphorus trichloride, 3936.
 formation, of hydrogen bonds, 3889.
 of nickel carbonyl, 2528.
 of trimethyl and triethyl phosphites, 3936.
 fusion of nickel carbonyl, 100.
 hydrolysis of organic phosphorus compounds, 2485.
 mixing, of binary and tertiary systems formed by benzene, cyclohexane, and *n*-heptane, 4141.
 of substituted benzenes, 1230.
 oxidation of organic phosphorus compounds, 2485.
Hecogenin, conversion into 12 β :21-acetoxy-17 α -hydroxypregn-4-ene-3:20-dione, 870.
 prep. from sisalagenin, 1671.
neoHecogenin. See **Sisalagenin**, 1671.
pseudoHecogenin, degradation to ($-$)- α -methylglutaric acid, 637.
Hemicellulose of *Chara*, isolation, 282.
cycloHepta[*bc*]acenaphthylene, prep. and properties, 1193.
 (\pm)-**Heptadeca-trans-8:10:12-triene-4:6-diyne-1:14-diol**, prep., 1770.
Heptadeca-trans-2:8:10-triene-4:6-diyne-1-ol, prep., 1770.
cycloHepta[*def*]fluorene, prep., 1193.
n-Heptane, heats of mixing with benzene and cyclohexane, 4141.
cycloHeptane, 1-formyl-, prep., 3334.
cycloHeptanecarboxylic acid, pyrolysis, 4407.
Heptane-1:7-dioic acid. See 4:4'-Azobis-4-cyanoheptanedioic acid, 4256.
cycloHeptatrienone series, synthetic experiments in. Parts V, VI, 309, 1841.
cycloHeptatrienylum bromide, carboxy-, prep., 1622.
Hept-3-en-2-ol, 3-ethyl-, resolution and addition reactions of, 34.
neoHerculin, structure and stereochemistry, 995.
Heterocycles, oxygen. Parts III, IV, 3688, 3693.
Hexacosan-2-one, (+)-4-methyl-, prep. and comparison with a degradation product from mycoceranic acid, 3851.
Hexa-1:5-diene, vapour pressure, 1391.
cycloHexadienes, substituted, steric interactions in. Part I, 4159.
cycloHexadienes, perfluoro-, prep., 1184.
Hexadienoic acids, stereoisomeric conjugated, prep. and ultraviolet spectra, 1862.
cycloHexa-2:4-dienones, 6-methoxyimino-, electronic spectra, 3721.
cycloHexane, heats of mixing with benzene and *n*-heptane, 4141.
cycloHexane, 1*H*-decafluoro-4-trifluoromethyl-, prep. and reactions, 1749.
 1-formyl-, prep., 3334.
trans-1:2'-cyclohexylidene-ethylidene-2-methylene-, prep. as a model compound for calciferol, 4016.
 nonafluoro-4-trifluoromethyl-, prep. and reactions, 1749.
cycloHexanes, 1:1-disubstituted, prep. from cyclohexanone, 1723.

- cycloHexane derivatives*, Part I, 3122.
cycloHexanecarboxylic acid, pyrolysis, 4407.
cis- and *trans-cycloHexanecarboxylic acids*, (\pm)-3-amino-, prep. and first dissociation constants, 2767.
cycloHexane-1-carboxylic acid, 1-methyl-2-oxo-, ethyl ester, reactions, 2042.
cycloHexane-1:2-dione, syntheses using monoketals of. Parts I, II, 160, 646.
cycloHexane-1:3-dione, 2-acetyl-4:4:6-trimethyl-, identity of angustione with, 2860.
cycloHexane-1:3-dione, 2-acyl-, Part II, prep. and conversion into phenanthridines, 341.
Hexane-1:5-dione, condensation with substituted indoles, 4369.
cycloHexane-1-spiro-2'-1'3'-dioxolan, 2-ethynyl-2-hydroxy-, prep., and transformation products, 646.
 2-oxo-, prep., 160.
cycloHexane-1-spiro-2'-1'3'-dithiolan, 2-ethynyl-2-hydroxy-, prep., and transformation products, 646.
 2-oxo-, prep., 160.
cycloHexane-1-spiro-2'-1'3'-oxathiolan, 2-ethynyl-2-hydroxy-, prep., and transformation products, 646.
 2-oxo-, prep., 160.
cycloHexanol, *cis-* and *trans*-3:3:5-trimethyl-, prep. and proof of configuration of, 3122.
 1-vinyl-, prep. and use as a model compound in prep. of (\pm)-phellandral, 665.
cycloHexanols, benzoylglycolyl-, prep., 1126.
Hexan-3-one, 4-chloro-, reaction with phenol and its ethers, 1706.
cycloHexanone, condensation with acetylmethylcyclohexenes, 329.
 conversion into 1:1-disubstituted *cyclohexanes*, 1723.
 shifts in absorption band of, due to substitution in, 352.
cycloHexanones, and related compounds, long-wavelength band in spectra of, 1651.
 conversion into *bicyclo*[5:3:0]dec-7-en-9-ones, 3151.
cycloHexene, oxidation by chromic acid, 1360.
 prep. of derivatives of, from sulphonamides, 2376.
cycloHexenes, acetylmethyl-, condensation with *cyclohexanone*, 329.
 nonafluoro-, gas-chromatographic separation on a preparative scale, and reactions, 1184.
cycloHex-2-enone, 3:5-dimethyl-, constitution of dimers of, 2227.
 3-methyl-, constitution of dimers of, 2227.
cycloHex-2-enyl methyl sulphide, autoxidation, 1996.
Hexynoic acids, stereoisomeric conjugated, prep. and ultraviolet spectra, 1862.
Hexose polymers, synthetic, prep. and structure, 3809.
D-threoHexulose, 5:6-dideoxy-, enzymic prep., 2699, 3843.
cycloHexyl bromide, pyrolysis, 2449.
 hydroperoxide, 1-hydroxy-, reaction with ferrous compounds, 3463.
High pressure, liquid-phase reactions at. Part IX, 2295.
Holmium, enrichment of crude, 335.
Homocysteine, *S*-(5'-deoxyadenosine-5'), prep., 1085.
Homocycorine, constitution, 1066.
Homophthalaldehyde, isolation and characterisation, 2675.
 self-condensation of, 2466.
Homophthalic acids, *N*-benzyloxy- and *N*-hydroxy-imides of, prep., 3518.
Homoterpenyl methyl ketone, mechanism of rearrangement of pinonic acid into, 2627.
Hop constituents, chemistry. Part VII, 174.
Hormones, steroid, and related substances, partial reduction, 3426.
 synthetic, of plants. Part III, 1756.
Hydantoic acids, ultraviolet spectra, 3010.
Hydantoins, ultraviolet spectra, 3010.
Hydrasine, oxidation by iron(III) in acid solution, 1551.
 oxidation in aqueous solution. Part III, 1551.
Hydrasine. Parts X, XI, 1753, 2044.
Hydrasine, *N'*-2:4-dinitrophenyl-*NN*-phthaloyl-, prep., 3299.
 methyl-, prep. of *N*-methyl-aldazinium and -ketazinium chlorostannates derived from, 2044.
 triphenyl-, thermal and photochemical decomp., 1320.
Hydrasines, *isonicotinoyl*-, prep., and relation to chemotherapy of tuberculosis, 4315.
Hydrasobenzene, photochemical decomp. studied by use of nitrogen isotopes, 98.
 [¹⁵N]₂Hydrasobenzene, prep. and photolysis, 98.
Hydrocarbons, aliphatic saturated, adsorption of, on water surfaces, 4076.
 aromatic, and aromatic bases, reactions with polynitro-compounds. Parts XIV, XV, 89, 1202.
 emission spectra in crystalline paraffins at -180° , 4320.
 stabilities of solid complexes with trinitrobenzene and trinitrotoluene, 89.
 steric hindrance in, 1041.
 branched-chain, synthesis and reactions. Parts VI—IX, 349, 1592, 1781, 2705.
 flexible, collision diameter of molecules of, 2524.
 having six to nine carbon atoms, collision parameters in the vapour phase, 1141.
 polyphenyl, interaction between aromatic chromophores in, 2552.
 thermodynamics of mixtures of, 4141.
 unsaturated, containing six carbon atoms, vapour pressures, 1391.
Hydrochlorination, calculation of heat and entropy changes of, 1784.
Hydrogen, chemisorption on uranium and thorium dioxides, 3939.
 peroxide, compounds formed with sulphates, selenates, and tellurates in aqueous solution, 3056.
 reactions with halide ions, 273.
 bond, internal, nature of. Parts II, III, 3721, 3727.
 bonds, heats of formation, 3389.
 intramolecular, and the association and solubilities of substituted benzoic acids, 132.
 studies in formation of. Part II, 67.
 effect, in C₆-C₉ hydrocarbons in the vapour phase, 1141.
 electrode processes. Parts I, II, 3482, 3489.
 ion, entropy of reaction with aliphatic amines, 1347.
 isotope effect in cyclodehydration of 2-anilinopent-2-en-4-one, 2358.
 exchange reactions, kinetics. Parts II—IV, 3609, 3619, 3622.
Hydrogenation, a partial asymmetric synthesis effected by, 34.
 catalytic, of ethylene at a nickel surface. Part I, 2490.
 Part II, mechanism, 2496.
 of 3 α -substituted Δ^2 -steroids, 1365.
 selectivity of, in prep. of *cis*-fatty acids, 3510.
Hydrolysis, acidic, of *tert*-butyl acetate, 1522.
 base-catalysed, of aliphatic amides and *p*-alkylbenzamides, 2601.
 of amides of dibasic acids. Part III, 2652.
 of esters, tracer studies on. Parts I, II, 1354, 1522.
Hydroxy-groups, 2:4:6-triiodophenyl isocyanate as reagent for, 3322.
Hydroxylamines, aliphatic. Part I, prep., 769.
NN-dialkyl-, prep. from corresponding amine, 769.
Hydroxylation, direct, of derivatives of *mesobenzanthrone*, 91.
Hyperconjugation, relation to electronic spectra and the Baker-Nathan effect, 2085.

I

- Idigbo**, extraction of terminolic acid from, 1333.
Imides, *N*-benzyloxy-, prep. and conversion into *N*-hydroxy-imides, 631.
N-hydroxy-, (Part I, 631.) Part II, 3518.
 prep., 631.
Imidine, of $\alpha\alpha'$ -dimethylsuccinic acid, 3530.
Imidines, prep. from hydrophthalic acids, 3525.
 prep. of tetrazaporphins from, 3536.
Imines and amines, heterocyclic. Parts IV, V, 3525, 3530.
Imino-group, deformation frequencies, 669.
Immunopolysaccharides. Parts III—V, 1531, 1537, 2096.
Indanes, acetylanisoyloxy-, Baker-Venkataraman transformation, 3986.
Indan-2-one, 1-phenyl-, prep. from 1-bromo-1:3-diphenylpropan-2-one, 1342.
Indazole derivatives, 2412.
Indazoles, amino-, prep., 2412.
 hydroxy-, prep., 2412.

- Indazolesulphonic acids**, prep., 2412.
- Indene**, 3-methyl-2-phenyl-, prep. from 2-*o*-hydroxymethyl-phenyl-2-phenylpropan-1-ol, 181.
- Indian gum**, composition of, and structure of two aldobiuronic acids derived from, 1160.
- Indicator constants**, thermodynamic, of dinitrophenols, 1386.
- Indium**, extraction at macro-concentrations from hydrobromic acid into isobutyl methyl ketone and diethyl ether, 1938.
extraction at tracer concentrations from acid-bromide solutions into isobutyl methyl ketone, 1927.
halides, extraction into organic solvents, 1946.
Tetrabromoindium(III) anion, Raman spectra, 1699.
- Indole**, 5:6-dimethoxy-, prep. of derivatives of, 2536.
3-ethyl-2-(2-pyridyl)-, prep. and resemblance to alstyrene, 2865.
1-lævuloyl-, cyclisation, 2481.
3-methyl-2-(2-pyridyl)-, prep. and resemblance to alstyrene, 2865.
3-(2-4'-pyridylacetamidoethyl)-, prep. and transformations, and bearing on biogenesis of strychnine, 2586.
- Indoles and tryptophans**, *Bz*-substituted, experiments on synthesis. Part III, 3499.
- Indoles**, decomp. of cystine in presence of, 1636.
- Indoles**, 1-acyl-, prep. from enol-lactones of γ -keto-acids, 2481.
Bz-chloro-, prep., 3499.
dimethyl-, condensation with hexane-2:5-dione, 4369.
fluoro-, prep., 1283.
Bz-monofluoro-, prep., 1283.
- Indole alkaloids**, synthetic experiments related to, 2675.
- Indole reaction**, Fischer's, 2519.
- Indolo-derivatives**, polycyclic, structure and properties. Parts VI, VII, 381, 393.
- Indolocarbazoles**, experiments on synthesis. Part VII, 337.
- Indoloquinolines**, prep. and structure, 387.
- Indolylmagnesium iodide**, reaction with enol-lactones of γ -keto-acids, 2481.
- Inductive effects of uncharged ligands in platinum(II) complexes**, 4461.
- Inhibition in radical polymerisation, mechanism**. Part II, 2822.
- Inhibitors**, phenolic, products formed from, during autoxidation of cumene. Part II, 2753.
- Inorganic compounds**, analysis by paper chromatography. Parts VII, VIII, 4332, 4337.
solvent extraction of, 1906, 1920, 1927, 1938, 1946.
- Inulin**, degradation in aqueous solution, 1106.
- Iodination of glyoxaline**, 1238.
- Iodine**, reaction with starches and α -1:4-glucosans, 3016.
vibrational spectra of intermolecular complexes formed with organic molecules, 471.
- Iodine cyanide**, vibrational spectra of intermolecular complexes formed with organic molecules, 471.
- Iodide ions**, kinetics of interaction with alkyl bromides in acetone, 3187.
kinetics of interaction with alkyl chlorides in acetone, 3177.
kinetics of interaction with alkyl iodides in acetone, 3196.
reactions with hydrogen peroxide, 273.
- Periodate**, action on gum ghatti, 1160.
action on methyl ethers of mannuronic and glucuronic acid, 2281.
formation of free-radical intermediates in reactions involving, 2794.
- Potassium iodate**, reaction with carbon, 1797.
- Potassium metaperiodate**, oxidation of starches by, 225.
- Sodium periodate**, action on gum ghatti, 1160.
- Ion-exchange**, in solutions containing germanium and oxalate, 4415.
- Ion-exchange resins**, of cross-linked poly(methacrylic acid), fundamental properties, 2143.
- Ionic-strength effects** in hydrolysis of dichlorodiphenylmethane, 3408.
- Ionisation functions**, of monohalogenoacetic acids, conductometric evaluation, 2104.
- Ionophoresis of carbohydrates**. Part II, 1778.
- Iridium**.
Potassium hexanitroiridate(III), reaction with potassium hydrogen difluoride, 3291.
- Iron pentacarbonyl**, reaction with phenylacetylene, 4021.
Ferric chloride, extraction into non-aqueous solvents, 1920.
Ferric complexes of analytical importance, absorption spectra, 137.
Ferric oxide, exchange reactions with oxygen, 3824.
Ferricyanide, alkaline, kinetic features of oxidation of aldehydes, ketones, and nitroparaffins, 40.
Ferrous complexes of analytical importance, absorption spectra, 137.
Ferrous compounds, reaction with 1-hydroxycycloalkyl hydroperoxides, 3463.
Ferrous sulphate dosimeter, absolute yield, correction, and addendum to "Chemical Action of Ionising Radiations in Aqueous Solutions" (*J.*, 1954, 3248), 582.
- Iron(II)**, colour with 1-2'-pyridylisoquinoline, 430.
- Iron(III)**, oxidation of hydrazine in acid solution by, 1551.
Pentacyanoferrate group, infrared spectra of compounds containing, 3555.
Potassium ferrocyanide, kinetics of reaction with nitrosobenzene catalysed by mercury compounds, 1449.
Tetracarbonyliron bisphenylacetylde, prep., 4021.
- Isomerisation**, alkali-catalysed, of α -cyperone, 525.
- Isomerism**, geometrical, of azonaphthalenes, 3441.
of dimeric nitrosomethane, 4190.
- Isoprene**, condensation with aniline and phenol, 4347.
- Isotope effect**, kinetic, application to study of reactivity of *p*-methylbenzyl radicals, 561.
- Itaconic acid**, $\gamma\gamma$ -dimethoxyphenyl-, ethyl hydrogen esters, cyclisation to 1-phenyl-naphthalenes, 1714.
anhydride, interconversion with citraconic anhydride in amine solutions, 1647.

J

*J*₀, the acidity function, formulation, 1263.

Jaffé's base, structure, 4443.

cis-Jasmone, prep., 1512.

Juglone, hydro-, glucoside, structure, 904.

Julolidine, 1:6-dioxo-, cyanine dyes derived from, 398.
prep. and structure of derivatives, 393.

K

K-Bands, effect of terminal methyl and substituted methyl groups of conjugated systems on, 2557.

Kaempferol, prep. of methyl ethers, 170.

Katuranin, prep. of methyl ethers and their conversion into derivatives of kaempferol, 170.

Ketazines, prep. of salts of, 1753.

Ketazinium chlorostannates, *N*-methyl-, derived from methylhydrazine, prep., 2044.

Ketone, tricyclic, stereospecific synthesis, 3348.

Ketones, absorption spectra. Parts II, III, 352, 1651.

α -acetoxylation with lead tetra-acetate, 4426.
alicyclic ethylenic, effects of steric conformation on ultraviolet and infrared spectra of, 3766.

branched chain, prep., 2705.
formation by catalytic decomposition of acids, studied by isotopes, 4423.

free-radical dimerisation, 349.

halogenated, experiments on, 1342.

kinetics of oxidation of, by alkaline ferricyanide, 40.

oxidations with potassium permanganate, 497.

substituted dialkyl, prep., 2705.

unsaturated, long-wavelength band in spectra of, 1651.

$\alpha\beta$ -unsaturated, autoxidation, 3288.

Ketones, α -halogeno-, reactions with aromatic compounds. Part II, 1406.

perfluoro-, prep., 3005.

Kolbe-Schmitt reaction, behaviour of pyridones and quinolones in, 4340.

L

Lactones. Parts I, II, 708, 2871.

γ -Lactones, α -aceto-, reaction with diazonium salts, 3470.

Lactosylamines, *N*-aryl-, transglycosylation, 193.

Laminarin, degradation by alkali, 1431.
9-19-cycloLanost-24-en-3 β -ol, identity with *cycloartenol*, 1316.
Lanthanum sulphites, prep., and separation by selective oxidation, 2360.
Lanthanons, alkali salts of ethylenediaminetetra-acetic acid, solubilities, 451.
 mechanism of a chromate process for separation of, 2409.
 separation with the aid of ethylenediaminetetra-acetic acid. Part V, 451.
Lapachenole, structure, 3631.
cycloLaudanol, similarity of reactions of, to those of *cycloartanol*, 596.
cycloLaudenol, constitution, 1607.
 isolation from opium, and structure, 596.
Lead bromide, thermodynamics of ion association in, 1458.
 chloride, thermodynamics of ion association in, 1458.
 nitrate, thermodynamics of ion association in, 1458.
 tetra-acetate, reaction with carbonyl compounds, 4426.
 reaction with phenyl ethers, 1404.
*iso*But-1-enyltriethyl-lead, reaction with ethanolic silver nitrate, 716.
 "Leaf alcohol" configuration, 1512.
Lecithin sols, surface forces in presence of inorganic salts, 1166.
Lectures.
 HUGO MÜLLER: G. R. Clemo, "Some newer aspects of the organic chemistry of nitrogen," 2057.
 PEDLER: E. L. Hirst, "Some problems in the chemistry of the hemicelluloses," 2974.
 TILDEN: C. A. Coulson, "The contribution of wave mechanics to chemistry," 2069.
 See also Presidential Address, 3569.
Lemon gum, isolation of 3-*O*- β -L-arabopyranosyl-L-arabinose from, 583.
Leprapinic acid, constitution, 3053.
Lepraria genus, constitution of leprapinic acid from, 3053.
 DL-*iso*Leucine, experiments on prep., 1719.
Leucoanthocyanidins, constitution and prep., 3384.
Lichens, Indian, chemical investigation. Part XIX, 3053.
Ligands, uncharged, inductive effects of, in platinum(II) complexes, 4461.
Light absorption, by molecular crystals, theory of, 539.
 studies in. Parts XI—XIV, 3754, 3766, 3773, 3776.
 See also Spectra.
Lignin of aspen, *p*-hydroxybenzoate groups in, 2347.
Lipids, of tubercle bacilli, constituents. (Part V, 3851.) Part VI, 3971.
 Parts II, III, 1740, 3510.
Liquid mixtures, binary, adsorption from, 4103.
 systems, two-component, magneto-optic rotations, 4147.
Liquids, heats of mixing, 1230.
Lithium alkenyls. See Alkenyl-lithiums, below.
 bromide, kinetics of interaction with alkyl halides in acetone, 3180, 3193.
 chloride, kinetics of interaction with alkyl halides in acetone, 3169, 3173.
 iodide, kinetics of interaction with alkyl halides in acetone, 3177, 3187, 3196.
 Alkenyl-lithiums, alkenylation with. Parts IX—XII, 3324, 3331, 3334, 3337.
 reaction with formamide, 3334.
*iso*Butenyl-lithium, use in prep. of dimethylbutadiene-carboxylic acids, 3324.
n-Butyl-lithium, non-radical decomp., 1712.
 Dihydronaphthyl-lithiums, prep., 3337.
 1:2-Dimethylpropenyl-lithiums, prep. and reaction with aldehydes and ketones, 3331.
 Indenyl-lithiums, prep., 3337.
 Phenyl-lithium, reaction with benzo-2:1:3-thiadiazole and its analogues, 1468.
 Trimethylvinyl-lithium. See 1:2-Dimethylpropenyl-lithium, 3331.
Lotoflavin, composition, 4249.
 β - and γ -Lumicolchicine, structure, 3864.
Lumisterol, epidioxides, prep., 2176.
Lupulone, synthetic, degradation and structure, 174.
Lupulonic acid, structure, 174.
Lycorenine, constitution, 1066.
 structural relationship to lycorine, 3392.

Lycorine, site of hydroxyl groups in, 4005.
 structural relationship to lycorenine, 3392.
Lycorineanhydromethine, prep. and reactions, 3557.
Lycoris alkaloids. (Parts XXIX, XXX, 1066, 2962.) Part XXXI, 3392.
Lysergic acids, dihydro-, dissociation constants, 1626.
 L-Lysine, polymerisation and copolymerisation, 232.
 D-Lyxofuranoside, methyl 2:3-anhydro-, ammonolysis, 1042.

M

Macrocycles, conjugated. Parts XXVI, XXVII, 3521, 3536.
Magnesium, quantitative analysis by paper chromatography in mixtures with Na, K, and Ca, 580.
Magnesium bromide, lowering of vapour pressure of solutions of, in diethyl ether, 108.
 hydroxide, calcination, 51.
 oxide, active, sintering, 46.
 Diphenylmagnesium, reaction with methyl 2:3-anhydro-4:6-*O*-benzylidene- α -D-mannoside, 2013.
 Indolylmagnesium iodide, reaction with enol-lactones of γ -keto-acids, 2481.
 Methylmagnesium halides, kinetics and mechanisms of reactions with halogenotrimethylsilanes, 4029.
 Phenylmagnesium bromide, reaction with triethyl phosphite, 2039.
Magnetic susceptibility, of complex nickel salts, 3431.
 of potassium chloride and carbon tetrachloride, 3911.
 of solids, improved technique of measurement of, by the Gouy method, 3911.
 susceptibilities and exchange reactions of complex salts. Parts II, III, 3431, 3435.
Magneto-optic rotations. See Rotations, magneto-optic, 4147.
Makoré, isolation of a saponin from, 1338.
Maleic acid, 2:4-xylyl hydrogen ester, rearrangement, 824.
Maleic dinitriles, prep., 423.
Malonic acid, methyl-, hydrolysis, 2652.
Malonamide, amino-, hydrolysis, 2652.
 methyl-, hydrolysis, 2652.
 nitro-, hydrolysis, 2652.
Malonic acid, perfluoro-, prep., 4302.
Manganese dioxides, synthetic, structural properties and relative electrode potentials. Parts I, II, 4054, 4057.
 Cell: Pt-H₂|HCl.MnCl₂. β -MnO₂-Pt, E.M.F., 4054.
 Manganic pyrophosphate, oxidation of α -hydroxy-acids by, 217.
 α -, γ -, and δ -Manganese dioxides, characterisation and relative electrode potentials, 4057.
 Potassium permanganate, kinetic studies of oxidation of aromatic compounds by. Parts I—IV, 555, 1407, 2850, 4186.
 kinetics of oxidation of *n*- and *iso*-propylbenzene by, 4186.
 kinetics of oxidation of substituted toluenes by, 1407.
 kinetics of oxidation of toluene by, 555.
 oxidation of pregn-16-en-20-ones by, 4373.
 stages in oxidation of organic compounds by. Parts V, VI, 217, 497.
 use in chlorination of benzoic acid, 4139.
 D-Mannitol, 1-(3:4-dimercaptobutyl) ether, prep. as fully acetylated derivative, 1292.
 D-Mannose, 2:3-5:6-di-*O*-*iso*propylidene-, degradation by alkali, 1709.
 2-*O*- β -D-glucuronosyl-, isolation from gum ghatti, 1160.
 α -D-Mannoside, methyl 2:3-anhydro-4:6-*O*-benzylidene-, behaviour towards diphenylmagnesium, 2013.
Mannosylamines, *N*-aryl-, transglycosylation, 193.
Mannuronic acids, *O*-methyl-, prep. and reaction with periodate, 2281.
Mass-law effects in hydrolysis of dichlorodiphenylmethane, 3408.
 (\pm)-Massoialactone, prep., 2535.
Mass-spectrographic analyses, prep. of nitrogen samples for, 95.
Mattencinol, 4'-demethyl-. See Farrerol, 3740.
Melacacidin, identification, 3384.
Melamines, triarenesulphonyl-, prep., 1497.

- Melisimplexin**, prep., 3908.
Melisimplin, prep., 3908.
Mellein, structure, 2871.
Mercury, anodic dissolution of, 1702.
 Mercuric chloride, reaction with triphenylmethyl chloride in nitromethane, 206.
 ions, catalysis of reaction between potassium ferrocyanide and nitrosobenzene, 1449.
 Mercurous ions, catalysis of reaction between potassium ferrocyanide and nitrosobenzene, 1449.
Mercury anode, capacity of double layer at, 1489.
compounds, inorganic, ultraviolet spectra, 1454.
 organic. See Organomercury compounds.
Mercury-mercurous sulphate electrodes, standard potentials in ethylene glycol-water mixtures at 25°, 2211.
Mesityl oxide, oxidation, 3288.
Mesomorphism and chemical constitution. Parts IV-VI, 236, 1412, 4359.
 of 4'-*n*-alkoxydiphenyl-4-carboxylic acids and their simple esters, 1412.
 of 6-*n*-alkoxy-2-naphthoic acids, effect of substitution on, 236.
 of diisobutylsilanediol, 549.
Metals, liquid. Parts II, III, 2262, 3047.
 transitional, exchange studies of chelate compounds of. Part I, 4098.
 use of 8-hydroxytrifluoromethylquinolines in analysis of, 376.
Metal chelate compounds formed by heterocyclic acids, stabilities. Part I, in aqueous solution, 1175. Part II, in aqueous dioxan, 3467.
complexes, application of theory of corresponding solutions to stability of, 3457.
salts, formation of carbonium ions by action of. Parts I, II, 206, 3104.
 rhythmic precipitation of, 1180.
Metal-ethylenediamine complexes, "labile," exchange with [¹⁴C]ethylenediamine, 4098.
 (-)-**Methadone** and related compounds, configurational studies, 900.
Methane, dichlorodifluoro-, reaction with tellurium, 576.
 dichlorodiphenyl-, mass-law and ionic-strength effects in hydrolysis of, 3408.
 diphenyl-, oxidation, 640.
 nitro-, cryoscopic behaviour in sulphuric acid, 3453.
 nitroso-, dimeric, geometrical isomerism, 4190.
Methanes, diphenyl-, halogenation, 83.
Methanethiol, trifluoro-, reactions, 3871.
Methanol, diphenyl-, molecular polarisation and association in benzene, 3793.
p-hydroxytriphenyl-, prep., 3089.
 "Methionine, active," prep. of a product from enzymic methylations using, 1085.
D- and *L*-**Methionine**, formation of dimethyl selenide in mould cultures in presence of, 1153.
Methyl acetate, triphenyl-, tracer study of hydrolysis, 1354.
 chloride, *p*-methoxytriphenyl-, prep., 3089.
 triphenyl-, alcoholysis, 4130.
 reaction with mercuric chloride in nitromethane, 206.
 chlorides, triaryl-, ionisation, 3098.
 formate, kinetics of hydrolysis of, in aqueous acids, 3106.
Methyl affinities of aromatic compounds, 1435.
cation, α -chlorodiphenyl-, reactions, 3089.
cations, *p*-methoxytriphenyl-, reactions, 3089.
groups, aromatic, characteristic infrared absorption of methyl rocking vibrations of, 3497.
 effect of, on *K*-bands of conjugated systems, 2557.
 ions, triphenyl-, extinction coefficients, 3104.
o- and *p*-**Methyl groups**, substituent effects of, 2929.
Methyl rocking vibrations, of aromatic methyl groups, characteristic infrared absorption of, 3497.
Methyl *m*-tolyl ether, Friedel-Crafts reactions with, 3417.
Methylamines, entropy of reaction with silver and hydrogen ions, 1347.
Methylation, biological, studies on. Part XV, 1153.
Methylene dichloride, diphenyl-, reaction with silver perchlorate and with aluminium chloride, 3089.
Methylene-blue, crystal structure, 2531.
Methylenbis-2-benzimidazoles, unsymmetrically substituted, prep., 1079.
Michael addition, abnormal, 1039.
condensation, "abnormal," elucidation of mechanism of, with oxygen-18 as tracer, 1288.
 elucidation of mechanism of, with oxygen-18 as tracer. Part I, the "abnormal" reaction, 1288.
Microvoltmeter, valve, for differential potentiometric titrations, 3016.
Mimusops heckelii, isolation of a saponin from, 1338.
Molecular structure and heats of formation. Part III, diphenylene, 1188.
 weights of carbohydrate osazones, microdetermination from ultraviolet absorption, 222.
Molecules, organic, electronic spectra of, and their interpretation. Part I, 2557.
 simple organic, bond-additivity method for calculation of diamagnetic susceptibilities of, 1990.
Monosilanes, triorgano-, alkaline hydrolysis, 4023.
Mora gonggripitii (Kleinh.) Sandwith, saponins from, 4201.
Morabukea, saponins from, 4201.
Morphine, absolute stereochemistry, 3252.
 crystallographic examination, 3261.
Morphine-thebaine alkaloids. Parts III-V, 3237, 3245, 3252.
Morpholino(4':3'-1:2)benzimidazole, 5-chloro-, prep. and reactions, 3275.
Mucilages and gums, isolation of oligosaccharides from. Part IV, 583.
Mycoceranin acid. Part II, probable structure, 3851.
Mycological chemistry, studies in. Parts II-IV, 2782, 2989, 2992.

N

- 2-Naphthaldehyde**, 6-methoxy-, prep., 2530.
Naphthalene, approximate potential function for out-of-plane vibrations of, 1813.
 electro-optical polarisability tensor ellipsoids of, 1641.
 ethylmethyl-, isolation from a Trinidad crude oil, 1847.
Naphthalenes, 1- and 2-bromo-, -chloro-, and -fluoro-, electro-optical polarisability tensor ellipsoids of, 1641.
 1:2-dihydroxymethyl-, prep., 2776.
 1-phenyl-. Part II, 1714.
 prep., 3302.
 prep. from ethyl hydrogen $\gamma\gamma$ -dimethoxyphenylitaconates, 1714.
 1:2:3:4-tetrahydro-2:3-dimethylene-1:4-dioxo-, isomeric, prep., 2238.
 trimethyl-, isolation from a Trinidad crude oil, 1847.
Naphthalene-2:3-dicarboxylic anhydrides, prep. by self-condensation of phenylpropionic acids, 461.
Naphthalene-2:3-dicarboxylic anhydrides, alkoxy-, prep. by self-condensation of alkoxyphenylpropionic acids, 465.
1:4-Naphthaquinone, 5:8-dihydroxy-, chemistry, 1089.
 2:5:7-trihydroxy-, identity with flavin, 2782.
Naphthaquinones, amino-, prep. and biological activity, 1573.
Naphthazarin, chemistry, 1089.
2-Naphthoic acids, 6-*n*-alkoxy-, effect of substitution in, on mesomorphism of, 236.
Naphthols, methyl-, prep., 2776.
Naphtho(1':2'-2:3)pyran, 4'-methoxy-6:6-dimethyl-, identity of lapachenole with, 3631.
2-Naphthylacetic acid, 1:2:3:4:7:10-hexahydro-1-hydroxy-8:10-dimethyl-7-oxo-, prep. of lactone of, 1130.
 1:2:3:4:5:6:7:10-octahydro-1-hydroxy-10-methyl-7-oxo-, prep. of lactone of, 1130.
2-Naphthylamine, 5:6:7:8-tetrahydro-*N*-toluene-*p*-sulphonyl-, additive compounds as intermediates in chlorination of, 24.
Natural products, infrared spectra. Part IV, 2624.
Nemotin, structure, 4270.
Nemotinic acid, structure, 4270.
Neopine dihydromethine, degradation, 3237.
NH group, intensities of vibration bands of, 483.
Nickel, catalytic hydrogenation of ethylene at surface of. Parts I, II, 2490, 2496.
 chemisorption of ethylene on, 2490.
 mechanism of hydrogenation of ethylene on surface of, 2496.
 thermodynamics of formation of nickel carbonyl from, 100.

Nickel carbonyl, heat capacity and thermodynamics of formation, 100.
 heat of formation, 2528.
 oxide, exchange reactions with oxygen, 3824.
 reactions of carbon monoxide and dioxide with oxygen on, 2726.
 Bis-salicylaldoximenickel and related compounds, magnetic susceptibility, 3431; exchange reactions, 3435.
Nickel complex salts, magnetic susceptibilities, 3431; exchange reactions, 3435.
isoNicotinic acid, prep. of derivatives of, and their relation to chemotherapy of tuberculosis, 4315.
Nitramides, and nitramines. Parts VIII, IX, 1655, 3997.
Nitramine, *O*-methyl-*N*-isopropyl-, acid-catalysed decomp., 3997.
Nitramines, and nitramides. Parts VIII, IX, 1655, 3997.
 primary, rate of decomp., and evidence for general acid-catalysis, 1655.
Nitriles, infrared spectra, 2170.
Nitro-groups, aromatic, migration, 1897.
Nitrogen, prep. of samples of, for mass-spectrographic analyses, 95.
 perfluoroalkyl derivatives. Parts I, II, 1881, 2532.
 Dinitrogen pentoxide, system with water, azeotropes in, 2248.
 tetroxide, compounds with tertiary amines, prep., 1557.
 conductance of solutions of, in sulphuric, selenic, and phosphoric acids, 3141.
 use in prep. of aromatic aldehydes, 1110.
 Nitrates, organic, acid hydrolysis, and the effects of change in the nucleophilic reagent on the S_N and E_{CO} reactions, 608.
 Nitric acid, hydrolytic decomp. of esters of. Parts IV, V, 608, 616.
 vapour pressure of solutions of. Part I, 2248.
 oxide, photolysis of acetaldehyde in presence of, 1076.
 sorption and reactivity in crystalline and amorphous siliceous sorbents, 757.
 Nitrites, spectroscopy, 4172.
 Nitrosyl complexes, chemistry. Part I, 56.
 chloride, compounds with tertiary amines, 1557.
 liquid, evidence of self-ionisation of, from tracer studies, 56.
 Nitrous oxide, kinetics of oxidation of sulphur dioxide by, 1440.
 sorption and reactivity in crystalline and amorphous siliceous sorbents, 757.
 Nitryl fluoride, conductivity in selenic and phosphoric acids, 4041.
 evidence of conductivity, density, and viscosity on reaction with sulphuric acid, 4041.
 physical properties, 2230.
Nitrogen compounds, carcinogenic. Part XVII, 1082.
 isotopes, use in study of photolysis of hydrazobenzene, 98.
Nitrogen-hydrogen bond, characteristic frequencies of the stretching vibrations of, 669.
Nitroparaffins, kinetics of oxidation of, by alkaline ferricyanide, 40.
Nitrosamines, spectroscopy, 4172.
Non-electrolytes, salting-out of. Part III, 3655.
 (+)-*n*-Nonacosan-10-ol, isolation from opium, 596.
Non-trans-6-enamide, *N*-(4-hydroxy-3-methoxybenzyl)-8-methyl-, prep. and identity with capsaicin, 1025.
Norsantonin, prep. of lactone of, 1130.
Nucleation, kinetics of, in supercooled solutions, 3129.
Nucleotides. Parts XXX-XXXIV, 808, 2206, 2632, 2855, 4396.

O

Obituary Notices.

Sir Shanti Swarup BEATNAGAR, 2985.
 John Stanley Herbert DAVIES, 2986.
 Frederic Leathley GOODALL, 1638.
 John Theodore HEWITT, 4493.
 Bernard Mouat JONES, 1638.
 Sir John Edward LENNARD-JONES, 1047.
 John Edwin MACKENZIE, 3565.
 William PUGH, 3566.

Obituary Notices—(contd.).

Henry Stanley RAFFER, 2987.
 Harry Gordon REEVES, 1639.
 James Frederick SPENCER, 3311.
 Henry WREN, 3567.
Ochracin. See Mellein, 2871.
isoOchracin, prep. and identity with 3-ethyl-7-hydroxy-phthalide, 2871.
Octacosanoic acid, 2:4:6(*D*)-trimethyl-, prep., 3851.
Octadeca-9:11-dienoic acid, prep., 1069.
Octadec-2-enoic acid, 2-methyl-, prep. and reactions, 1547.
Octadec-11-en-9-ynoic acid, prep., 1069.
trans-Octadec-11-en-9-ynoic acid. See Santalbic acid, 3782.
n-Octane, viscosity of vapour of, 2523.
Octane-1:8-dioic acid, 4:5-dicyano-4:5-dimethyl-, prep., and reducing action of radical from, 4256.
Octane-2:3:6:7-tetraol, 2:3:6:7-tetramethyl-, attempted prep., 1781.
Oct-1-ene, oxidation by chromic acid, 1360.
bicyclo[2:2:2]Oct-2-ene, 1:2:3:4-tetrachloro-5:6-dioxo-7-phenyl-, hydration, 2054.
 Odour and chemical structure in the thiophen series, 21.
Oenanthetol, prep., 1770.
Oenanthotoxin and cicutoxin. Part II, 1770.
Estrogens, synthetic. Part III, 4229.
18 α -Olean-12-en-3 β -ol, reactions of derivatives of, and comparison with α -amyrin, 2125.
Olefinic compounds, stereochemical studies of. Part IV, 1512.
Olefins, kinetic study of oxidation of, by perbenzoic acid, 1525.
 oxidation by chromic acid, 1360.
 short-chain polymerisation, 4291.
Olefins, fluoro-. Parts III-V, 3880, 4291, 4302.
 perfluoro-, prep., 3005.
 polyhalogeno-, rearrangements, 3880.
Oleic acid, anodic synthesis, 2218.
Oleum, transport-number measurements in solutions of, 372.
Oligosaccharides, isolation from gums and mucilages. Part IV, 583.
 produced by enzymic breakdown of pectic acid, structure. Part II, 1890.
 α -Onoceradienediol. See α -Onocerin, 2639.
 α -Onocerin, constitution and stereochemistry, 2639.
Oosporein, isolation, and prep. of derivatives, 2163.
 mechanism of natural formation, 11.
Opium, constitution of *cyclolaudenol* from, 1607.
 isolation of *cyclolaudenol* and (+)-*n*-nonacosan-10-ol from, 596.
Oppenauer oxidation of ergocalciferol, 370.
Optical activity, unstable, of *N*-benzoyldiphenylamine-carboxylic acids, 145.
 resolution of *p*-carboxyphenyl-2-diphenylphenylstibine, 3116.
Orcein, structure of a constituent of, 2619.
Organic compounds, highly fluorinated, reactions of. Parts VIII, IX, 1184, 1749.
 stages in oxidations of, by potassium permanganate. Parts V, VI, 217, 497.
Organomercury compounds, catalysis of reaction between potassium ferrocyanide and nitrosobenzene, 1449.
 ultraviolet spectra, 1454.
Organometallic and organometalloidal fluorine compounds. Part XII, 563.
Organometallic compounds, action on the tropolones, 911.
 of the alkali metals. Part V, 1712.
Organometallic halides, aromatic, association complexes of, in solution, 108.
Organophosphorus compounds, thermochemistry. Part I, 3936.
Organosilicon compounds. Parts XI-XVI, 126, 1420, 2047, 2517, 3306, 4023.
Orton rearrangement. Part I, 1845.
Ossazones, of carbohydrates, microdetermination of molecular weights from ultraviolet absorption, 222.
 of lactones, conversion into 1-aryl-4-aryloxy-3-hydroxy-methylpyrazol-5-ones, 3969.
Oscine, configuration of nitrogen atom in, 3504.
9-Oxa-3-aza-anthrone, prep., 2755.
Oxacyclobutanes, prep. and polymerisation, 3648.

- Oxaloacetic acid**, fluoro-, esters, prep., 2190.
1,2-Oxazetidines, perfluoro-2-methyl-, prep. and spectra, 1881.
Oxidation, of aromatic compounds by potassium permanganate, kinetic studies. Parts I—IV, 555, 1407, 2850, 4186.
 of isobutane at low temperatures, 3029.
 of di- and tri-phenylmethane, 640.
 of enediols with selenium dioxide, 579.
 of hydrazine in aqueous solution. Part III, 1551.
 of α -hydroxy-acids by manganic pyrophosphate, 217.
 of ketones and pyruvic acid with potassium permanganate, 497.
 of olefins by chromic acid, 1360.
 with perbenzoic acids, 1525.
 of organic compounds by potassium permanganate, stages in. Parts V, VI, 217, 497.
 of organic sulphides. Parts III, IV, 1596, 1996.
 of polyhalogeno-compounds. Part I, 2151.
 of *n*- and *iso*-propylbenzene by potassium permanganate, kinetics, 4186.
 of starches by potassium metaperiodate, 225.
 of substituted toluenes by potassium permanganate, kinetics, 1407.
 of sulphur dioxide by nitrous oxide, kinetics, 1440.
 of toluene by potassium permanganate, kinetics, 555.
 of uranium dioxide, 3946.
 Oppenauer, of ergocalciferol, 370.
 photochemical, of fluoroalkanes, 2151.
Oxidation processes, organic. Parts III, IV, 1404, 4426.
Oxides, solid, exchange reactions of. Parts VI, VII, 2726, 3824.
Oxime ethers, diamagnetic susceptibilities, 3513.
Oximes, diamagnetic susceptibilities, 3513.
 formation of, by X-irradiation of aliphatic amines in aqueous solution, 2594.
Oxindoles, hydroxy-, prep. through benzoxazines, 739.
Oxonols derived from thio-oxindole. Part I, 30.
Oxygen, determination of isotopic composition of, in alcohols and related compounds, 155.
 molecular, autoxidation of organic sulphides by, 1596.
 rate of exchange between *tert*-butanol and water, 791.
 reaction with carbon oxides on solid cuprous, nickel, and chromium oxides, 2726.
Oxygen-18, use in elucidation of the "abnormal" Michael condensation, 1288.
Oxygen exchange, and Walden inversion, in *sec*-butanol, 604.
 between alcohols and water. Parts I, II, 791, 4401.
 heterocycles. Parts III, IV, 3688, 3693.
Ozonolysis of allylic compounds, observations on, 2830.
- P**
- Palladium derivatives** of *o*-dimethylaminophenyldimethylarsine, prep., 1269.
 Palladium(0) compounds. Part I, prep. and properties of diisocyanatopalladium(0) compounds, 3924.
Palasitricin, isolation and constitution, 1589.
Paraffins, crystalline, emission spectra of aromatic hydrocarbons in, 4320.
 effect of molecular structure on relative chlorination rates of, 285.
Paratecoma alba, structure of lapachenole from, 3631.
Partition, use to investigate complex formation, 3889.
Pavine. Part I, structure and chemistry, 2888.
Pectic acid, structure of oligosaccharides produced by enzymic breakdown of. Part II, 1890.
Pellitorine (pellitorin), nature of, 999.
Penicillium purpurogenum Stoll., isolation of purpurogenone from, 2992.
Penta-2,4-dienoic acid, 2:4-dimethyl-, prep., 3324.
Pentane, 2:2:4-trimethyl-, viscosity of vapour, 2523.
cyclopentane, 1,2-bishydroxymethyl-, prep. of stereoisomers of, 2383.
cyclopentanes, new prep., 3292.
Pentane-3-carboxylic acid, (\pm)*erythro*-3-hydroxy-2-methoxy-4-methyl-, prep., 65.
cyclopentanecarboxylic acid, pyrolysis, 4407.
cyclopentanecarboxylic acid, 2-oxo-, ethyl ester, condensation with heterocyclic amines, 1775.
Pentanoic acid. See 4:4'-Azobis-4-cyanopentanoic acid, 4256.
Pentan-2-one, 3:5-dichloro-, prep., 4483.
Pentan-3-one, 2-chloro-, reaction with phenol and its ethers, 1706.
cyclopentanones and related compounds, long-wavelength band in spectra of, 1651.
cyclopenta[a]phenanthrene, attempts to synthesise diazoderivatives, 1775.
Pent-3-en-1-ol, 2-hydroxy-2:4-dimethyl-, prep. with *iso*-butenyl-lithium, 3324.
Pentenes, oxidation by chromic acid, 1360.
Pent-1-enes, 1:1-diethylsulphonyl-3:4:5-trihydroxy-, prep. of aldotetroses from aldopentoses through, 1212.
Pent-2-en-4-one, 2-anilino-, hydrogen isotope effect in cyclo-dehydration of, 2358.
 kinetics of cyclodehydration, 2351.
 2-*p*-toluidino-, cyclodehydration, 2351.
*D-threo*Pentulose, 5-deoxy-, prep., 2699.
*neo*Pentyl alcohol, acid-catalysed oxygen exchange reactions with *n*-butyl alcohol, 4401.
Pent-1-yn-3-ol, 3-methyl-, resolution, 2051.
Peptide links, specific chemical fission of. Part I, 259.
Peptides and amino-acids, cyto-active. Part II, 1223.
 rearrangement, 259.
Perbenzoic acids, kinetic study of oxidation of olefins by, 1525.
Perimidine dyes and intermediates, prep., 2394.
Perkin-Oglialoro reaction, stereospecificity in, 3445.
Peroxides, organic, isotopic tracer studies on formation and decomp., 2471.
 Part V, 2471.
 reactions. Part VII, 3463.
Petroleum distillates, high-boiling, constituents of. Part II, 1847.
Phase diagrams for the system: Cr₂O₃-P₂O₅-H₂O, 360.
 (\pm)-**Phellandral**, prep., 665.
 [¹⁴C]Phenanthrene, prep., 4216.
Phenanthrenes, 9:10-dihydro-. Part III, 1242.
 fluoro-, absorption spectra, 4486.
 mononitro-, prep., 4477.
 nitro-, absorption spectra, 4486.
 perhydro-1:4-dioxo-, stereoisomeric, stability sequence of, 1789.
Phenanthrene-2'' ξ ''-carboxylic acid, *trans-anti-trans*-perhydro-2'' ξ '':1:3-dimethyl-1:7-dioxo-, methyl ester, prep., 3361.
Phenanthridine, 5-amino-9-phenyl-, prep., 3549.
Phenanthridines, prep. from 2-acylcyclohexane-1:3-diones, 341.
Phenanthridines, 9-alkyl-, prep. from 9-alkylfluoren-9-ols, 1634.
9-Phenanthryl phenyl ether, prep. and cleavage, 3295.
Phenethylamines, 3:4-dihydroxy-, *N*-substituted, prep., 3926.
Phenohomazines, 5:6:11:2-tetrahydro-5:11-*endomethylene*, prep., 991.
Phenol, and its ethers, reactions with α -halogeno-ketones, 1706.
 condensation with isoprene, 4347.
 reaction of lead tetra-acetate with ethers of, 1404.
Phenols, condensation with nitrobenzaldehydes, 3914.
 method of reduction of, to aromatic hydrocarbons, 522.
 of coal-tar, red colour given with aqueous alkalis, 2089.
Phenols, dinitro-, thermodynamic indicator constants of, in dioxan-water mixtures, 1386.
 2-nitroso-, tautomeric equilibria in, 3727.
 2:4:6-trialkyl-, oxidation in cumene solutions, 2753.
 [³H]Phenols, *p*-substituted, reaction with aqueous sulphuric acid, 3609.
Phenothiazine derivatives, prep. as possible anthelmintics. Part II, 1281.
Phenothiazines, prep. as possible anthelmintics, 1030.
Phenoxyacetic acids, chlorohydroxy-, prep., 3681.
Phenoxyalkanoic acids, chloroethylanimo-, prep., 890.
Phenyl isocyanate, 2:4:6-tri-iodo-, as reagent for hydroxy- and amino-groups, 3322.
 isocyanate dimer, crystal structure, 2931.
 radicals, *p*-chloro-, arylation of substituted benzenes with, 1425.
Phenylation of pyridine, 3963.
 of toluene, partial rate factors for, 6.

- p*-Phenylazoanils, characterisation of succinic and glutaric acids by, 2968.
- p*-Phenylazomaleinanil, a reagent for conjugated dienes, 2970.
- o*-Phenylenediamine, *N*-methyl- and *NN*-dimethyl-, prep., 3308.
- o*-Phenylenediamines, *N*-substituted, new prep., 1468.
- Phloracetophenones, *C*-methyl-, benzoylation and benzylation, 105.
- Phoenicin, mechanism of natural formation, 11.
- iso*Phorone, oxidation, 3288.
- Phosphorus, esters containing. Parts XII, XIII, 2040, 3564.
- stereochemistry of organic derivatives of. Part III, 4107.
- Phosphorus halides, reaction with 1:1:1:3:3:3-hexachloropropan-2-ol, 505.
- oxy-acids, related to bistrifluoromethylphosphinic acid, prep. and infrared spectra, 563.
- tribromide, reactions with alcohols, 277.
- trichloride, heats of esterification, 3936.
- trifluoride, electrical conductivity, 279.
- Alkyl dihydrogen phosphates, long-chain, and their sodium salts, X-ray examination, 1584.
- Alkylphosphonates, lower, vapour pressures and densities, 2964.
- Aryl diethyl phosphates, use in reduction of phenols to aromatic hydrocarbons, 522.
- Aryloxymethylphosphonates, prep. and biological evaluation, 1756.
- Bistrifluoromethylphosphinic acid, prep. and infrared spectra, 563.
- Dialkyl hydrogen phosphates, long-chain, and their sodium salts, X-ray examination, 1584.
- Dialkyl phosphorobromidates, prep., 3564.
- Diethyl phosphorochloridate, use to reduce phenols to aromatic hydrocarbons, 522.
- Diphosphonates, aliphatic, physical properties. Part I, ethyl esters, 3092.
- Phenyldialkylphosphines, metal complexes, 4007.
- Phosphonic acid, kinetic studies of dealkylation of esters of. Part I, Dealkylation by hydrogen bromide in ether, 1978.
- Phosphonium salt, spirocyclic, prep. and optical resolution, 4107.
- Phosphoric acid, aqueous, exchange reactivity, 3622.
- conductance of dinitrogen tetroxide in, 3141.
- conductance of nitryl fluoride in, 4041.
- kinetic studies of dealkylation of esters of. Part I, 1978.
- oxide, phase-diagram and ion-exchange studies of system with chromic oxide and water, 360.
- Phosphorofluoric acid, esters, prep., 2040.
- Phosphorous acid, kinetic studies of dealkylation of esters of. Part I, 1978.
- Trialkyl phosphites, heats of formation, 3936.
- Triethyl phosphite, reaction with phenylmagnesium bromide, 2039.
- Tritolyl phosphate, partition analyses in gas chromatography on, 1480.
- Tris(trifluoromethyl)phosphine oxide, prep. and infrared spectrum, 574.
- Phosphorus compounds, organic, heats of hydrolysis and oxidation, 2485.
- thermochemistry. Part I, 3936.
- See also Organophosphorus compounds.
- Phosphorus-alkoxy-group bond, dissociation energies, 3963.
- Photobromination, studies of. Part II, 1628.
- Photoconductance, in organic crystals. Parts I, II, 1728, 1734.
- spectral dependence, quantum efficiency, and relation to semiconductance in anthracene, 1734.
- Photodimerisation of unsaturated cyclic sulphones, 314.
- Photolysis of acetaldehyde. Part III, 1076.
- of hydrazobenzene, 98.
- Phthalaldehydic acids, prep. from phthalides, 708.
- Phthalasine, 1:2-dihydro-4-hydroxy-1-oxo-2-phenyl-, prep. of related compounds and their activity against *Mycobacterium tuberculosis*, 852.
- Phthalic acid, *cis*-hexahydro-, prep. of imidines from, 3525.
- 3:4:5:6-tetrahydro-, prep. of imidines from, 3525.
- acids, *N*-benzyloxy- and *N*-hydroxy-imides of, prep., 3518.
- Phthalide, 3-ethyl-7-hydroxy-, identity of *isochracin* with, 2871.
- Phthalides, conversion into phthalaldehydic acids, 708.
- Phthalimidine, *cis*-hexahydro-, prep., structure, reactions, and an unusual dehydrogenation of, 3525.
- 3:4:5:6-tetrahydro-, prep., structure, and reactions, 3525.
- "Phthaloxime," structure, 3518.
- Phthiocerol, structure, 3971.
- Phyllanthol, prep. from α -myrrin, 3992.
- Phyllocladene, structure, 2624.
- α - and γ -Picoline, organosilicon derivatives, prep., 3306.
- Picalima nitida*, Stapf, Th. and H. Durand, alkaloids of. Part III, 2049.
- Picric acid, cryoscopic behaviour in sulphuric acid, 3453.
- Pinacol rearrangement of $\alpha\beta$ -unsaturated acetylenic glycols, 1592.
- Pinonic acid, mechanism of rearrangement into homoterpenyl methyl ketone, 2627.
- Piperasine, prep. of compounds containing the arsenic analogue of, 401.
- Piperazines, 1:4-dialkyl-, prep. by thermal decomp. of tetra-alkylpiperazinium salts, 2971.
- Piperazinium salts, 1:1:4:4-tetra-alkyl-, thermal decomp., 2971.
- Piperidine, 4-aminomethyl-4-(2:5-dihydroxyphenyl)-1-methyl-oxidation to an azepindole derivative, 374.
- Piperido(1':2'-1:2)benzimidazoles, prep., 3275.
- Plant hormones, synthetic. Part III, 1756.
- Plant-growth regulators, prep. Part IV, 577.
- Platinum.
- Platinous halides, stability of complexes of, 2936.
- Platinous-cyclopropane complexes, prep., 2045.
- Platinum(II), binuclear halogen-bridged complexes, reactions with monoamines, 3558.
- complexes, inductive effects of uncharged ligands in, 4461.
- halogen-bridged complexes, prep., 2787.
- Platinum-hydrogen electrodes, processes at, 3482.
- Plutonium hydride, prep. and properties, 3932.
- nitride, prep. and properties, 4196.
- Plutonium compounds, prep. and properties. Parts I, II, 3932, 4196.
- Pneumococcus* Type II, specific polysaccharide of, nature of di-*O*-methyl-L-rhamnopyranose obtained from, 1531; structural studies on, 1537.
- Polar effects and infrared spectra. (Part I, 2818.) Part II, 4221.
- Polarisability, molecular, 1641, 2750.
- Polarisation, molecular, of hydroxylic compounds in benzene, 3793.
- of azobenzene, 3840.
- Polarographic behaviour, effect of structure on. Part I, 1516.
- Polarography of trivalent arsenic, 704.
- Polonium bromides, prep. and properties, 3959.
- chlorides, prep. and chemical reactions, 2320.
- halides. Parts I, II, 2320, 3959.
- Hexabromopolonites, prep., 3959.
- Hexachloropolonites, prep., 2320.
- Polonium-210, deposition on to gold foil and wire, 2320.
- Polyaza-1:2-benzanthracene, prep. of derivatives of, as compounds with anti-folic acid activity, 2214.
- Polyazabicyclic compounds. Part I, 2326.
- Polyazanaphthalenes. Parts I, II, 303, 1113.
- Polyene series, studies in. Parts L, LI, 2763, 2765.
- Polyenes, researches on. Part III, 3037.
- Polyenes, dimethyl-, prep. and ultraviolet spectra, 3037.
- Polyesters, infrared spectra and crystallinity, 2428.
- model systems for pyrolysis of, 2717.
- Poly(ethylene glycol), infrared spectra and crystallinity, 3270.
- Poly(ethylene terephthalate), model systems for pyrolysis of, 2717.
- Polyglutamic acid, bacterial, structure, 517.
- Polyglycine azides, condensation-polymerisation, 2542.
- esters, condensation-polymerisation, 2542.
- Polyhexoses, prep. and structure, 3809.
- Polymerisation, of acid and basic α -amino-acids, 232.
- of 1:2-disubstituted ethylenes, 2295.
- of 3:3-disubstituted oxacyclobutanes, 3648.
- of ethyleneimine, kinetics and mechanism, 2564.

- Polymerisation**, of polyglycine esters and azides, 2542.
of *N*-substituted ethyleneimines, 2577.
of thiophen derivatives. Parts III, IV, 314, 1565.
sensitised, of styrene, effect of *p*-benzoquinone upon, 2822.
short-chain, of olefins, 4291.
- Polymerisations**, radical, mechanisms of retardation and inhibition in. Part II, 2822.
- Poly(methacrylic acid)**, fundamental properties of cross-linked ion-exchange resins of, 2143.
- Polymers**, addition, stereochemistry. Part I, 2801.
- Polymorphism**, studies in. Part VII, 3705.
- Polynitro-compounds**, cryoscopic behaviour in sulphuric acid, 3453.
interaction with aromatic hydrocarbons and bases. Parts XIV, XV, 89, 1202.
- Polypeptides**. Part I, 2542.
- Polyphenyls**, interaction between aromatic chromophores in, 2552.
- Polyporus fumosus**, isolation of 2:5-dimethoxybenzoquinone from, 575.
- Polyribonucleotides**, model experiments for stepwise degradation, 2206.
- Polysaccharides**, acidic, ester and lactone linkages in. Part II, 1831.
properties of cetyltrimethylammonium salts of, 3788.
alkali-soluble, of *Cladonia alpestris*, 651.
of baker's yeast. Part I, 355.
of *Chara*. Parts I, II, 281, 282.
of *Colocasia antiquorum*, 2441.
periodate-oxidised, properties of. Part V, 222.
- Polystyrene**, sulphonated, cation-exchange equilibria on resins of, 2741.
- Pongamol**, chemistry. Part III, prep., 2048.
- Populus tremula**, *p*-hydroxybenzoate groups in lignin of, 2347.
- Porphin**, prep. from chlorin, 3749.
- Potassium**, quantitative analysis by paper chromatography in mixtures with Mg, Ca, and Na, 580.
- Potassium chloride**, magnetic susceptibility, 3911.
laurate, diffusion in water studied by Gouy interference method, 2916.
See also entries under Bromine, Chlorine, Fluorine, Iodine, Iron, Manganese, etc.
- Potentials**, depolarisation, of Girard-T compounds, 1516.
- Precipitation**, rhythmic, effect of crystallinity on, 1180.
- Pregna-5:14-dien-20-one**, 3 β -acetoxy-16 α :17 α -dihydroxy-, prep., 4383.
- Pregnane derivatives**, 12-oxygenated. Part V, 870.
- Pregnan-20-ones**, improvement in prep. from sapogenins, 2807.
partial reduction, 3426.
- Pregnan-20-ones**, 16 α :17 α -dihydroxy-, prep. from pregn-16-en-20-ones, 4373.
prep. of *n*-homo-derivatives of, 4377.
- Pregn-4-ene-3:20-dione**, 12 β :21-diacetoxy-17 α -hydroxy-, from hecogenin, 870.
- Pregn-16-en-20-ones**, hydroxylation. Parts I—III, 4373, 4377, 4383.
oxidation with permanganate, 4373.
- Presidential Address**.
W. Wardlaw, "A Problem in Structural Chemistry," 3569.
- Pristimerin**. Part I, 2515.
- Prodigiosin**, physical properties, 3305.
- Propane**, 1-bromo-1-methyl-, pyrolysis, 2445.
2-bromo-2-methyl-, pyrolysis, 2454.
- Propanes**, 2:2-dialkoxy-, prep., 2052.
1:1:3-trialkoxy-, thermal fission, 2657.
- Propanesulphonic acid**, 2:3-dimercapto-, prep. of water-soluble salts of, 1307.
- cycloPropane**, complexes with platinum(II), prep., 2045.
reaction with strong acids, 713.
reactions, and comparison with lower olefins. Part I, introduction, 713. Part II, 2045.
- cycloPropanes**, prep. from sorbic esters, 779.
- cycloPropanecarboxylic acids**, 3-methyl-, prep., 779.
- Propanol**, aqueous, activity coefficients of sulphuric acid in, 4156.
2:3-dimercapto-, prep. of *S*-benzyl derivatives of, 1302.
2-*o*-hydroxymethylphenyl-2-phenyl-, prep. and reaction with hydrogen bromide, 181.
- Propan-2-ol**, 1-chloro-2-methyl-, solvolysis, 3267.
1:3-dimercapto-, prep. of *S*-benzyl derivatives of, 1302.
prep. of *O*- β -*D*-glucoside of, 1299.
1:1:1:3:3:3-hexachloro-, reaction with inorganic non-metal halides, 505.
2-methyl-, acidic aqueous, rates of formation and decomp. of carbonium ions in, 791.
rate of oxygen exchange with water, 791.
- Propene**, reaction with strong acids, 713.
system with isopropyl chloride and hydrogen chloride, equilibria in, 1784.
- Propene**, 1:1:3:3:3-pentafluoro-, direction of addition of radicals to, 3005.
- Prop-2-ene-1-sulphonic acid**, prep., 1307.
- Propenes**, 2-alkoxy-, prep., 2052.
- Propionic acids**, alkoxyphenyl-, self-condensation, 465.
o-chlorophenyl-, self-condensation, 461.
phenyl-. Parts IV, V, 461, 465.
tolyl-, self-condensation, 461.
- [*carboxy-¹³C*]Propionic acid, catalytic conversion into ketone, 4423.
- Propionic acids**, β -aroyl-, and their esters, prep., 456.
 β -aroyl-. Parts IV—VI, 456, 2199, 4469.
 β -aroyl- α -methyl-, prep., and conversion into polynuclear compounds, 2199.
 α -2-naphthyl-*oxy*-, prep., and plant-growth regulation by, 577.
- Propyl peroxides**, 1:1-diphenyl-, 2550.
- isoPropyl bromide**, kinetics of pyrolysis of, 973.
chloride, system with propene and hydrogen chloride, equilibria in, 1784.
- n*-Propyl bromide**, kinetics of pyrolysis of, 973.
- Propylene glycol**, aqueous, activity coefficients of sulphuric acid in, 4156.
- N*-isoPropyl nitramine**, *O*-methyl-, acid-catalysed decomp., 3997.
- Pschorr reaction**, attempted prep. of 9:10-dihydro-7:8:2':3'-tetramethoxy-10-methyl-1:2-benzophenanthridine by, 2534.
- Pteridine**, 4:7-diamino-, and related compounds, prep., 2036.
2:4-diamino-7-hydroxy-, prep., 2038.
5:6:7:8-tetrahydro-4-methyl-, prep., 896.
2:4:7-triamino-, and related compounds, prep., 2036.
- Pteridines**, monosubstituted, ultraviolet and infrared spectra, 2336.
- Pteridines**, 2-amino-4-hydroxy-, prep., 1379.
hydro-. Part III, 896.
hydroxy-, degradation by alkali, 2690.
7-hydroxy-6-methyl-, prep. and conversion into analogues of pteric acid, 1113.
- Pteridine-6-carboxylic acid**, 2:4-diamino-7-hydroxy-, 2038.
- Pteridine derivatives**. Part I, 1379.
- Pteridine studies**. Parts VI, VII, 2336, 2690.
- Pteric acid**, attempted prep. of analogues of, 1113.
prep. of analogues containing the quinoxaline ring system, 303.
- Purines**, pyrimidines, and glyoxalines. Part I, 1834.
- Purpurogallin**. Part XII, 911.
- Purpurogenone**, isolation and possible structure, 2992.
- Pyrazine**, 2:5-dimethyl-3:6-diphenyl-, prep. of derivatives of, 3094.
- Pyrazines**, *n*- π transitions in, 121.
- Pyrazoles**, 1-(nitrophenyl)-, reaction with alkali, 4489.
- Pyrazolidine**, 4-alkyl-3:5-dioxo-1:2-diphenyl-, prep. of derivatives of, 3158.
- Pyrazol-5-ones**, 1-aryl-4-aryloxy-3-hydroxymethyl-, prep. from lactone osazones, and reduction, 3969.
- Pyrenes**, fluoro-, absorption spectra, 4486.
nitro-, absorption spectra, 4486.
- Pyrethrins**, experiments on synthesis of. Part IX, 779.
- Pyridine**, electro-optical polarisability tensor ellipsoids for, 2750.
phenylation, 3963.
n- π transitions in, 121.
- Pyridine**, 4:2'-aminoethyl-, prep., and bearing on biogenesis of strychnine, 2581.
2:6-diamino-3-nitroso-, prep. of triazanaphthalenes from, 303.
4-di-(2-hydroxyethyl)amino-, esters, as potential tumour inhibitors, 2021.

Pyridines, 2,3-diamino-, prep. of triazanaphthalenes from, 303.
 1:2-dihydro-2-oxo-, infrared spectra and behaviour in Kolbe-Schmitt reaction, 4340.
 ω -halogenomethyl-, Part V, 2436.
Pyridinium bromide, reactions with thionyl bromide, 3624.
Pyrido(1'2'-1:2)benzimidazoles, prep., 3275.
1H-Pyrido[3:2-1-kl]phenothiazine, reaction with Girard reagents, 4025.
1H-Pyrido[3:2-1-kl]phenothiazine, 2,3-dihydro-3-oxo-, prep. of derivatives of, as possible anthelmintics, 1281.
Pyrido(2:3)pyrasines, 3,6-diamino-, prep., 2032.
Pyrimidine, 2- and 4-hydroxy-, existence in solution in lactam form, 211.
Pyrimidines. Part VIII, 3478.
 prep., 1834.
 purines, and glyoxalines. Part I, 1834.
 simple. Parts II, III, 211, 4035.
Pyrimidines, amino-, attempts to prepare analogues of ptericoic acid from, 1113.
 methylation and structure, 4035.
 2-chloro-5-nitro-, prep. and reactions of quaternary salts of, 4354.
 quaternary salts from. Part I, 4354.
 2:4-dichloro-5-nitro-, prep. and reactions of quaternary salts of, 4354.
 1:2-dihydro-1-methyl-, prep. and relation of structure to those of *N*-methyluracils, 211.
 halogeno-, prep., 3478.
 hydrazino-, prep., 3478.
Pyrimidinium salts, 6-amino-1-methyl-, rearrangement, 1858.
Pyrocatechol, 3:6-dinitro-, prep. and orientation, 1313.
Pyrone series. Part II, 2911.
2-Pyrones, 4:5:6-triaryl-, prep., 2911.
Pyrolysis of 1-anilinocycloalkane-carboxylic acids, 4407.
 of organic bromides. Parts I—VI, 965, 973, 979, 2445, 2449, 2454.
 of poly(ethylene terephthalate) and allied polyesters, 2717.
 studies in. Parts IV, V, 2717, 4407.
Pyrocoline, heterocyclic systems related to. Part I, 2834.
 2-methyl-, prep. of derivatives of, 1504.
Pyrocolines, chemistry of. Parts VII, VIII, 1504, 1657.
Pyrocolines, alkyl-, prep., and reactions with alkyl iodides, 1657.
Pyrocolinium iodides, tetra-alkyl-, prep., and ultraviolet spectra, 1657.
Pyrroles, 1-aryl-, prep., and biological activity, 1573.
Pyrrolidine, *DL*-2:5-di-imino-3:4-dimethyl-, prep. and reactions, 3530.
Pyrrolidines, 2-imino-, prep., 2371.
Pyrrolid-2-one, 1-methyl-, electric moment, 1382.
Pyruvic acid, oxidations with potassium permanganate, 497.
Pyruvic acid, fluoro-, esters, prep., 2190.

Q

Quaternary salts related to tropane-3 α :6 β -diol, configuration of nitrogen atom in, 3504.
Quercetagenin, prep. of flavonols related to, 3908.
Quercetagenin, hexa-*O*-methyl-, prep., 3908.
Quinaldic acid, decomp. in presence of mesobenzanthrone, 4027.
Quinazolines, 1:2-dihydro-2:2-dimethyl-, prep., 2527.
Quinidine salts, effect of temperature on equilibrium between stereoisomers of, in chloroform solutions, 4152.
Quinoline, electro-optical polarisability tensor ellipsoids for, 2750.
Quinoline, 3-carboxy-2-chloro-4-methoxy-, identity of dictamnamic acid with, 4284.
 1:2-dihydro-1-methyl-, prep. of substituted 2-methylene derivatives, 937.
 5-formyl-8-hydroxy-, prep., 3552.
 8-hydroxy-, resistance of *Bact. lactis aerogenes* to, 347.
 1:2:3:4-tetrahydro-1-methyl-4-oxo-, prep. of derivatives, 381.
Quinolines, 8-substituted, with amide groups in the side chain, prep., 2525.

Quinolines, 2-acylamino-4-alkoxy-, prep., bromination, and lack of biological activity, 510.
 5-*n*-alkyl-8-hydroxy-, prep. as fungicides, 4391.
 1:2-dihydro-2-oxo-, infrared spectra and behaviour in Kolbe-Schmitt reaction, 4340.
 8-(α -halogenoacylamido)-6-methoxy-, prep., 2525.
 ω -halogenomethyl-. Part V, 2436.
 8-hydroxytrifluoromethyl-, analytical properties, 376.
isoQuinoline, electro-optical polarisability tensor ellipsoids for, 2750.
isoQuinoline, benzyl-, absolute stereochemistry of alkaloids related to, 3252.
 1-(2-pyridyl)-, prep., reaction with ferrous iron, and effect of steric hindrance in the ferrous reaction, 430.
isoQuinolines, ω -halogenomethyl-. Part V, 2436.
Quinolinium di-iodide, 4-amino-6-(6-amino-1:2-dimethyl-pyrimidinium-4-amino)-1:2-dimethyl-, attempted prep., 1853.
 4-amino-1:2-dimethyl-6-(1:2-dimethyl-6-methylamino-pyrimidinium-4-amino)-, prep., 1858.
Quinolinium salts, 4-amino-6-(4-amino-1:6-dimethylpyrimidinium-2-amino)-1:2-dimethyl-, prep. as trypanocides, 1850.
Quinolono-derivatives, polycyclic, structure and properties. Parts VI, VII, 381, 393.
Quinones. Part V, 1089.
 reaction with anthranilic acids, 4440.
Quinones, 2:5-dianilino-, prep. and cyclisation, 4440.
Quinoxaline, prep. of derivatives of, 303.
Quinoxaline, 3:6-diamino-, and derivatives, prep., 2027.
 2-methyl-, action of acid on, 303.
Quinoxalines and related compounds. Parts I, II, 1804, 3308.
 2- and 3-hydroxy-, methylation, 1804.

R

Radiations, ionising, chemical action of, in solution. Part XIV, 2594.
Radicals, direction of addition of, to 1:1:3:3:3-pentafluoropropene, 3005.
Radicals, alkyl free, properties and reactions in solution. Part VIII, 4256.
 free, addition to unsaturated systems. Part XI, 3005.
 formation, as intermediates in reactions involving periodate, 2794.
 participation in Ullmann diaryl synthesis, 3081.
 water-soluble, reducing action, 4256.
Raman effect and solvent extraction, 1699.
Rapson triphenylene synthesis, application to 1:2:3:4-dibenzophenanthrene, 4479.
Rearrangement, anionotropic, in 1-methylallyl bromide, 1615.
 intramolecular, of dialkylbenzylphenacylammonium bromides, 4487.
 of new type, of α -acetylisobutyrophenone by sodium, 3341.
 pinacol, of $\alpha\beta$ -unsaturated acetylenic glycols, 1592.
Reduction, polarographic, of trivalent arsenic in non-complex-forming media, 704.
Refractive index, use in detection of intermolecular complex formation in solution, 67.
Reindeer moss. See *Cladonia alpestris*, 651.
Resins, cation-exchange, selective elution of metals adsorbed on, by organic solvents. Part I, 2273.
 ion-exchange, relation of properties to structure of. Part VII, 2741.
 natural phenolic, constituents. Part XXIII, 827.
 sulphonated polystyrene, cation-exchange equilibria on, 2741.
Resorcinol, 2:4-dimethyl-, red colour given with aqueous alkalis, 2089.
Retardation in radical polymerisations, mechanism. Part II, 2822.
Retronecine, prep. of rosmarininecine from, 59.
L-Rhamnopyranose, dimethyl ethers, nature of, 1531.
L-Rhamnose, 1:1-diethylsulphonyl derivatives, prep. and conversion into 5-deoxy-L-arabinose, 3544.
Rhenium.
 Rhenium, septavalent, prep. of complex oxyfluorides of, 602.

Rhodium.

Potassium hexanitrorhodate(III), reaction with potassium hydrogen difluoride, 3291.

Rhododendron farrerae, Tate, optically active flavanone from leaves of, 3740.

Ribonucleic acid, methylated, of yeast, nature of, and stability to alkali, 2005.

of yeast, constitution. Part XVI, 2005.

acids, linkages in phosphotriesters of, 4396.

Ribonucleosides, deoxy-, and related compounds. Part V, 816.

Ribose and its derivatives, chemistry of. Parts IV, V, 1323, 1327.

2-deoxy-, prep. from but-2-yne-1:4-diol, 4280.

D-Ribose, prep. of methyl ethers of, by partial methylation, 1327.

D-Ribose, 2:3-di-*O*-methyl-, prep. and characterisation, 1323.

4-*O*-methyl-, chromatographic behaviour, 1327.

Ricinoleic acid, total synthesis, 1740.

Ring systems, new, of potential carcinogenic activity. Part I, 4349.

Rongalite, accurate determination of structure of, 3064.

Rosmarinicine, structure and prep. from retronecine, 59.

Rosmarinine, conversion into senecionine, 63.

Rotations, magneto-optic, of ephedrine isomers and their hydrochlorides in solution, 4150.

of two-component liquid systems, 4147.

Rubazonic acid, substituted, prep., 3969.

Eye-grass, oligosaccharides from partial breakdown of, 1106.

S.

S_N Mechanism in aromatic compounds. Parts XIV, XV, 2926, 2929.

S_N Reaction, in organic nitrates, 608, 616.

Salicylic acid, 3-β-D-glucosyloxy-, isolation from *Vinca minor*, 4206.

Salting-out of non-electrolytes. Part III. The inert gases and sulphur hexafluoride, 3655.

Salts, complex, exchange reactions and magnetic susceptibilities. Parts II, III, 3431, 3435.

complex metallic, constitution. Part XV, 1269.

Santalbic acid, constitution and properties, 3782.

identity with ximeninic acid, 1069.

Santonin, chemistry. Part I, 4430.

experiments on synthesis. Part IV, 1130.

Santonins, rearrangement products, 4430.

Santonins, desmotropo-, prep. of acetates of, from santonin and 11β(H)-santonin, 4430.

ψ-Santonin, constitution. Part IX, 588.

position of double bond in, 588.

Sanshoöl I, relation to *N*-isobutylidodeca-2:4:8-trienamides, 4244.

Sapogenins, conversion into pregnan-20-ones, 2807.

natural spirostan, configuration at C₍₂₅₎, 637.

prep. of new isomers of, 1966.

steroid, epimerisation at C₍₂₅₎, 1671.

steroidal, infrared absorption, 443.

stereochemistry of side-chain of, 1966.

isoSapogenins, prep. of new isomers of, 1966.

isoSapogenins, 23a- and 23b-bromo-, infrared absorption, 447.

Saponin, isolation from makoré, 1338.

Saponins, of wood. Part II, saponins from morabukea, 4201.

Sarsasapogenin, transformation into smilagenin, 1671.

Scandium, extraction and purification, 245.

hydroxide, prep., and formation of scandate ions, 251.

Scandate, prep., solubilities, and formation of ammine complexes, 255.

Scandate ions, formation during precipitation of scandium hydroxide, 251.

Selenium dioxide, oxidation of enediols by, 579.

Dimethyl selenide, formation in mould cultures, 1153.

Selenates, compounds formed with hydrogen peroxide in aqueous solution, 3056.

Selenic acid, conductance of dinitrogen tetroxide in, 3141.

conductance of nitril fluoride in, 4041.

Semicarbazones, infrared spectra, 3389.

Semiconductance in organic crystals. Parts I, II, 1728, 1734.

relation to photoconductance in anthracene, 1734.

Senecio alkaloids, general structure, 63.

Parts X—XII, 59, 63, 65.

Senecionine, prep. from rosmarinine, 63.

Sesamol, constitution, 827.

Silanediol, diisobutyl-, mesomorphism, 549.

Silanes, halogenotrimethyl-, kinetics and mechanism of reactions with methyl magnesium halides, 4029.

substituted benzyltrimethyl-, alkali-catalysed cleavage, 126.

substituted 9-fluorenyltrimethyl-, prep., 1420.

triorgano-, reaction with silver perchlorate, 2517.

triorgano-, alkaline hydrolysis, 4023.

Silicon, co-ordination to, 2047.

tetrachloride, products of high-temperature reaction of, with hydrogen sulphide, 3395.

Silica, chemistry of surfaces of, 773.

Silicates, hydrothermal chemistry. Part VI, 2480.

Siliceous sorbents, sorption and reactivity of nitrous oxide and nitric oxide in, 757.

Silicic acid, as surface layer on quartz, 773.

See also Silanes.

Silicon compounds, organic. See Organosilicon compounds.

Silicone 702, partition analyses in gas chromatography on, 1480.

Silver, stability of a three-co-ordinated thiourea complex of, 1032.

Silver nitrate, conductivity in acetone solutions containing pyridine, the three picolines, quinoline, or γ-collidine, 2797.

conductivity in 1:4-dioxan-water solutions, acetone, and acetone-water mixtures, 1208.

conductivity in non-aqueous and mixed solvents. Parts II, III, 1208, 2797.

nitrite, thermal decomp., 2457.

perchlorate, reaction with triorganosilanes, 2517.

isoBut-1-enylsilver, formation of isobut-1-enyl radicals from. Part I, 716.

Silver ions, entropy of reaction with aliphatic amines, 1347.

Sintering of active magnesium oxide, 46.

Sisalagenin, transformation into hecogenin, 1671.

Skimmiol, identity with taraxerol, 1675.

Smilagenin, prep. from sarsasapogenin, 1671.

Sodium, liquid, influence of oxide films on surface tension of, 3047.

surface tension, 2262.

quantitative analysis by paper chromatography in mixtures with K, Mg, and Ca, 580.

Sodium hydroxymethanesulphinate. See Rongalite, 3064.

peroxide, commercial, superoxide ions in, 2367.

Solids, active, production by thermal decomposition. Parts V—VII, 46, 51, 3804.

reactions between. Part II, 1797.

Solubility of sucrose and methyl α-D-glucoside, 2714.

Solutions, supercooled, kinetics of nucleation in, 3129.

Solvent, effect of, on ionisation of organic halides. Part III, 3098.

Solvents, organic, elution of metals from cation-exchange resins by. Part I, 2273.

Solvent extraction and Raman spectra, 1699.

of inorganic compounds, 1906, 1920, 1927, 1938, 1946.

participation in nucleophilic displacement reactions. Part I, general considerations, 4114. Parts II, III, 4121, 4130.

Sorbic esters, addition of ethyl diazoacetate to, 779.

Spectra, absorption, of complex ions of analytical importance, 137.

use to confirm structure of tetra-aryl-butadienes and tetrahydrofurans, 4469.

electronic, of acetophenones and benzaldehydes, 3754.

of conjugated systems, effects of steric conformation on, 3754.

of 2-nitrosoanisole, 6-methoxyiminocyclohexa-2:4-dienone, and related compounds, 3721.

of organic molecules, and their interpretation. Part I, 2557.

relation to hyperconjugation and the Baker-Nathan effect, 2085.

emission, of aromatic hydrocarbons in crystalline paraffins at -180°, 4320.

infrared, and crystallinity. Parts I—III, 2428, 2431, 3270. infrared, and polar effects. (Part I, 2818.) Part II, 4221.

- Spectra**, infrared correlation of mass-insensitive shifts in, with inductive and mesomeric effects, 4221.
of alicyclic ethylenic ketones, 3766.
of alkoxy- and acetoxy-steroids, 2017.
of aromatic trifluoromethyl compounds, 1311.
of bistrifluoromethylphosphinic acid and related phosphorus oxy-acids, 563.
of 23a- and 23b-bromo-sasopogenins, 447.
of carbonised coals, 752.
of coals, 744.
of compounds containing the pentacyanoferrate group, 3555.
of conjugated ethylenic and acetylenic systems, 1874.
of diazonium cations, 276.
of esters, nitriles, and ester-nitriles, 2170.
of ethylenediaminetetra-acetic acid and its di- and tetrasodium salts, 1766.
of flavanones and flavones, 655.
of methyl rocking vibrations of aromatic methyl groups, 3497.
of monosubstituted pteridines, 2336.
of natural products. Part IV, 2624.
of platinum(π) complexes, *trans*-[L, amPtCl₂], 4461.
of polymorphic steroids and steroidal saponins, 443.
of pyridones and quinolones, 4340.
of semicarbazones, 3389.
of sulphinic acids, 3163.
of sulphonamides, 669.
of sulphonyl halides, sulphuryl halides, sulphones, thio-sulphonates, metal sulphonates, thionyl halides, sulphoxides, sulphites, and metal sulphinates, 2901.
of trifluoromethylphosphine oxide, 574.
ultraviolet, microdetermination of molecular weights of carbohydrate osazones from, 222.
of alicyclic ethylenic ketones, 3766.
of halogeno-aromatic compounds, relation to chemical reactivity, 1350.
of mercury compounds, 1454.
of monosubstituted pteridines, 2336.
of stereoisomeric conjugated hexadienoic and hexenynoic acids, 1862.
of sulphinic acids, 3163.
- Spectroscopy**, studies in. Parts VIII, IX, 4169, 4172.
- Spectrum**, Raman, of tetrabromogallate(π) ion, 2655.
polarised, of anthracene. Part I—III, 539, 2302, 2309.
- Spermostrychnine**, constitution, 2253.
- Spirostan saponins**, natural, configuration at C₍₂₅₎, 637.
- Starch**, modified, from malted barley, constitution, 3075.
normal and mottled, of wheat, fractionation by elution in absence of oxygen, 4049.
- Starches**, oxidation by potassium metaperiodate, 225.
physicochemical studies on. Parts II, III, 225, 3016.
reaction with iodine, 3016.
- Stereochemistry** of addition and configurations of maximum order, 2801.
of α -amyrin, 2125, 2610.
of carpamic acid, 1563.
of conjugated dienes, 1007.
of cyperones, 3027.
of erythroaphins, 1144.
of euphol, 876.
of neoherculins, 995.
of cyclolaudenol, 1607.
of morphine, benzylisoquinoline, aporphine, and tetrahydroberberine alkaloids, 3252.
of α -onocerin, 2639.
of organic derivatives of phosphorus. Part III, 4107.
of side-chain of steroidal saponins, 1966.
of substituted α -phenylcinnamic acids, 3445.
of terrein, 1028.
of triarylstibines, 3116.
of tropane alkaloids. Part VI, 3504.
of ursanes, 2610.
- Stereoisomerism** of addition polymers. Part I, 2801.
- Stereospecificity**, in the Perkin-Oglialoro reaction, 3445.
- Steric effects**, on ultraviolet spectra of styryl derivatives, 3773.
on ultraviolet spectra of *o*-substituted diphenyls, 3776.
hindrance, in analytical chemistry. Part III, 430.
in aromatic hydrocarbon systems, 1041.
- Interactions** in substituted cyclohexadienes. Part I, 4159.
- Steroid group**, studies in. Parts LXVIII—LXX, 2176, 2477, 3420.
hormones and related substances, partial reduction, 3426.
series, studies in. Part LXIX, 2477.
- Steroids** (C.W. Shoppee *et al.*). Parts IX, X, 1365, 1370.
(F.S. Spring *et al.*). Part XV, 1170.
- Steroids** and Walden inversion. Parts XX—XXVI, 679, 686, 690, 694, 1375, 1891, 2876.
attempted addition of ring D to the ABC-tricyclic system of, 3341.
polymorphic, infrared absorption, 443.
possible intermediates for prep. of analogues of, 2042.
unsaturated, general method of prep., 1370.
- Steroids**, acetoxy-, infrared spectra, 2017.
alkoxy-, infrared spectra, 2017.
4:4-dimethyl. Part I, 2998.
3-hydroxy-, methylation, 1375.
See also Azasteroids.
- 5 α -Steroids**, 11-oxo-, bromination, 2477.
- 9 β -Steroids**, reactions at C₍₁₁₎ in, 3420.
- Δ^5 -Steroids**, 3 α -substituted, catalytic hydrogenation, 1365.
production in replacement reactions of 3 β -substituted Δ^5 -steroids, 694.
- Sterols**, prep. of substances related to. Parts LII, LIII, 3341, 3348.
- 9-Stibiafluorenes**, prep., resolution, and racemisation, 1662.
- Stillingic acid**, methyl ester, identity with methyl decar-*trans*-2:cis-4-dienoate, 1007.
- Strychnine**, attempt to simulate biogenesis of. Parts I, II, 2581, 2586.
- Strychnine derivatives**, yellow colour and green fluorescence of alcoholic alkaline solutions of, 2481.
- Strychnos psilocperma**, alkaloids of, 2253.
- Strychnos species**, Australian, alkaloids of. Part II, 2253.
- Strychnospermone**, constitution, 2253.
- Styrene**, effects of *ortho*-substituents on ultraviolet spectrum of, 3773.
- Styryl derivatives**, *o*-substituted, steric effects on ultraviolet spectra of, 3773.
- Styrylacetamide**, *N*-*p*-methoxy- and *N*-*p*-nitro-, prep., 296.
- Substitution**, aromatic, *meta* to a basic group. Part II, 83.
at a saturated carbon atom, mechanism. Parts XLII—XLIX, 3169, 3173, 3177, 3180, 3187, 3193, 3196, 3200.
bimolecular, and anionotropic rearrangement in 1-methylallyl bromide, 1615.
bimolecular nucleophilic, polar and steric effects of alkyl groups in, 3200.
homolytic aromatic. Parts VIII—X, 6, 1425, 3963.
inorganic, directing effects in. Parts I, II, 4456, 4461.
- Substitution processes**, additive compounds as intermediates in. Parts I, II, 24, 2376.
- Succinic acid**, $\alpha\alpha'$ -dimethyl-, prep. and reactions of imidine of, 3530.
acids, isolation and characterisation as *p*-phenylazoanils, 2968.
acids, $\alpha\alpha'$ -di-*p*-hydroxyphenyl-, prep., 4229.
anhydride, reaction with Grignard reagents to give β -aroylpropionic acids, 456.
- Succinimide**, *N*-bromo-, reaction with benzoyl peroxide, 2529.
- Succinimidine**, dimethyl-, prep. and reactions, 3530.
- Succinonitriles**, general prep., 423.
- Sucrose**, solubility and heat of crystallisation in aqueous solution, 2714.
- Sulphanilic acid**, transformation of diazoates of, 3154.
- Sulphanilamide**, thiophen analogue, prep., 1071.
- Sulphonamides**, infrared spectra, 669.
prep. of derivatives of cyclohexene from, 2376.
- Sulphones**, bisaminoaryl, prep., 1251.
infrared spectra, 2901.
unsaturated cyclic, photodimerisation, 314.
- Sulphones**, β -amino- and $\alpha\beta$ -unsaturated, prep. Part II, 3296.
- Sulphonium iodides**, 2-aroyloxyethyldimethyl-, alkaline fission, 1049.
- Sulphonium compounds**, related to aryl-di-halogenoalkylamines, prep., 1388.
- Sulphur**, perfluoroalkyl derivatives. Parts II, III, 2901, 3871.

- Sulphur dioxide**, kinetics of oxidation by nitrous oxide, 1440.
hexafluoride, salting-out of, 3655.
tetrafluoride, prep. and physical properties, 3147.
Fluorosulphonic acid. Part II, ionisation in the anhydrous solvent and the formation of complex fluorides, 433.
Hydrogen sulphide, products of high-temperature reaction of, with silicon tetrachloride 3395.
Monosulphides, organic, autoxidizability of, 1596.
Sodium hydroxymethanesulphinite. See Rongalite, 3064.
Sulphates, compounds formed by, with hydrogen peroxide in aqueous solution, 3056.
Sulphide quaternary salts, heterocyclic, action of bases on, 916.
Sulphides, analogous to *merocyanines*, attempted prep., 927.
organic, oxidation of. Parts III, IV, 1596, 1996.
Sulphinates, infrared spectra, 2901.
Sulphinic acids, absorption spectra and structure, 3163.
Sulphonates, infrared spectra, 2901.
Sulphonic acid group, prep. of water-soluble derivatives containing, 1307.
Sulphonyl group, characteristic frequencies, 669.
halides, infrared spectra, 2901.
Sulphoxides, infrared spectra, 2901.
Sulphuric acid, activity coefficients of, in aqueous propylene glycol and aqueous propan-1-ol at 25°, 4156.
activity of, in ethylene glycol-water mixtures, 2211.
behaviour of acetic anhydride and of benzoic anhydride in, 298.
conductance of dinitrogen tetroxide in, 3141.
cryptoscopic behaviour of polynitro-compounds in, 3453.
electrical conductivity, 3300.
hydrogen isotope exchange reactions in, 3609, 3619, 3622.
kinetics of cyclodehydration of anils in, 2351, 2358.
mechanism of hydrolysis of esters by, 298.
properties of solutions of. Part I, 372.
reaction with nitryl fluoride, 4041.
transport-number measurements in solutions of, 372.
Sulphuryl halides, infrared spectra, 2901.
Thiols, reactions and infrared spectra, 3871.
Thiolsulphonates, infrared spectra, 2901.
Thion group (>C:S), spectroscopic properties, 3871.
Thionic acids, separation by paper chromatography, 4332.
Thionyl bromide, systems with alcohols, intervention of polyhalides in, 3624.
halides, infrared spectra, 2901.
Trifluoromethanesulphenic acid, prep. and infrared spectra, 2901.
Trifluoromethanesulphinic acid, prep., and infrared spectra, 2901.
Trifluoromethanesulphonic acid, prep. and infrared spectra, 2901.
Sulphur chromophores, compounds containing. Parts I—V, 916, 927, 933, 937, 949.
compounds, heterocyclic, prep. as possible anthelmintics, 1030.
reactions with potassium bromide-bromate solution 3562.
Sulphur-nitrogen bond, characteristic frequencies, 669.
Surface forces, of lecithin sols in presence of inorganic salts, 1166.
tension, of liquid sodium, influence of oxide films on, 3047.
of sodium, measurement by the drop-volume technique, 2262.
Surfaces, of silica, chemistry, 773.
of water, adsorption of insoluble vapours on. Parts I, II, 4067, 4076.
solid, effect on the propagation of flame through ethylene-air mixtures, 195.
Susceptibilities, diamagnetic, of oximes and oxime ethers, 3513.
of simple organic molecules, empirical bond-additivity method for calculation of, 1990.
Syntheses, anodic. Part XIII, 1097.
- Tantalum penta-alkoxides**, prep. and complexity, 726.
Taraxerol, constitution, 2131.
structure, and identity with skimmiol, 1675.
Taro. See *Colocasia antiquorum*, 2441.
Tazettinmethine, structure, 2962.
Tellurium, reaction with dichlorodifluoromethane, 576.
Tellurium dibromide, prep. and properties, 2603.
Caesium hexabromotellurite, crystal structure, 3959.
Tellurates, compounds formed with hydrogen peroxide in aqueous solution, 3056.
Terephthalaldehyde, benzoin reaction with, 1286.
Terminalia ivorensis, isolation of terminolic acid from, 1333.
Terminolic acid, isolation from *Terminalia ivorensis*, 1333.
Terrein, constitution and stereochemistry, 1028.
Testosterone, prep. of compounds resembling, as potential androgens, 2398, 2403.
Tetracene, photo-effects in, 1728.
n-Tetraatriacontane-9:11-diol, 4-methoxy-4-methyl-, identity of phthiocerol with, 3971.
Tetrazaporphin, octamethyl-, prep., and structure of related compounds, 3521.
Tetrazaporphins, prep. from imidines, 3536.
*L-glycero*Tetrolucose and related compounds, prep., 2699.
Thebaine-morphine alkaloids. Parts III—V, 3237, 3245, 3252.
Thebainone-C, structure, 3245.
Thebainomethines, structure, 3245.
2-Thenalddehydes, 5-substituted, and derivatives, prep., and biological activity, 1581.
2-Thenoic acid, prep. and odours of esters of, 21.
Thermochemistry of organic phosphorus compounds. Part I, 2485.
of organophosphorus compounds. Part I, 3936.
Thermodynamic quantities, calculation from equilibrium constants. Part II, 1784.
Thermodynamics of hydrocarbon mixtures. Part I, 4141.
Thetins, formation of dimethyl selenide in mould cultures in presence of, 1153.
9-Thia-3-aza-anthrone, prep. and properties, 2755.
9-Thia-1:2-benzofluorene, prep. of derivatives of, 1565.
9-Thia-3:4-benzofluorene, prep. of derivatives of, 1565.
1:2:4-Thiadiazole, 5-alkylamino-3-amino-, prep., 2288.
3:5-diamino-, prep., 2288.
prep. and structure, 1.
Thiadiazoles. Parts I, II, 1, 2288.
"Thiambutenes" and related compounds, configurations studies, 900.
Thiamine disulphide, disproportionation of 2-aminobenzyl analogue of, 2390.
Thiazoles, ultraviolet light absorption, 2943.
Thiazolid-5-ones, 4-alkylidene-2-thio-, action of ammonia on, 2265.
Thiazolines, 2-imino-, prep. and ultraviolet absorption, 2943.
Thiazolo(3':2'-1:2)glyoxalines, prep., 1695.
Thiazolones, prep. from α -thioacylamino-acids, 1791.
(\pm)-5:8-Thioctic acid, prep., 4218.
*iso*Thiocyanates, aryl, prep., and biological activity, 1573.
Thiolacetic acid, 2-acetamidoethyl ester, prep. and rate of alkaline hydrolysis, 2966.
Thionaphthen 1:1-dioxide, photodimerisation, 314.
Thionaphthens, *tert.*-butyl-4:5:6:7-tetrahydro-4-oxo-, prep. and odours, 21.
Thio-oxindole, *merocyanines* derived from. Parts III, IV, 28, 2537.
oxonols derived from. Part I, 30.
Thiophen, 2-acetamido-5-formyl-, prep., 1071.
Thiophens, *tert.*-butyl-, reactions, 21.
Thiophen chemotherapeutics, potential. Part IV, 1071.
Thiophen derivatives of biological interest. Parts IX, X, 21, 1581.
polymerisation. Parts III, IV, 314, 1565.
Thiophen series, odour and chemical structure in, 21.
Thiourea, condensation with α -bromo-*p*-chlorophenylacetonitrile, 4443.
three-co-ordinated silver complex, stability, 1032.
Thiourea, amidino-, oxidation and cyclisation, 1.
Thioureas, *NN'*-diaryl-, and related compounds of potential biological interest, prep., 1573.
Thiozanthones and xanthones. Part VI, 2755.

T

- Tachysterol**, structure and light absorption, 320.
Tachysterol chromophore, prep. of trienes containing, 320.
Tangeretin, prep., 3908.

Thorium dioxide, chemisorption of reducing gases on, 3939.

Thymidine, configuration at glycosidic centre in, 816.

Thymidines, prep. and structure, 816.

Thymidine-3' thymidine-5' phosphate, prep., 2632.

*cyclo*Thymidines, prep., 816.

Tigogenin, prep. from *neotigogenin*, 1671.

*neo*Tigogenin, transformation into *tigogenin*, 1671.

Tirucallol, isomerisations in, 2190.

Titanium tetraethoxide, hydrolysis, 721.
structural aspects of hydrolysis of, 3977.

Titanous chloride, kinetics of reduction of azoxybenzene and derivatives by, 1393.

Titrations, differential potentiometric, valve microvoltmeter for, 3016.

Toluene, kinetics of oxidation by potassium permanganate, 555.
partial rate factors for phenylation of, 6.

Toluene, *o*-fluoro-, nitration, 4026.

2:4:6-trinitro-, cryoscopic behaviour in sulphuric acid, 3453.
stabilities of solid complexes with aromatic hydrocarbons, 89.

Toluenes, substituted, kinetic studies of oxidation by potassium permanganate, 1407.

p-Tolyl xylol sulphones, isomeric, prep., 887.

Transformation, polymorphic, of cubic to monoclinic carbon tetrabromide, 3705.

Transglycosylation of *N*-arylglycosylamines, 189.
of *N*-aryl-mannosyl-, galactosyl-, and lactosyl-amine, and of tetra-*O*-acetyl-*N*-arylglycosylamine, 193.

n- π Transitions in the azines, 121.

Transport numbers, measurement in sulphuric acid and oleum solutions, 372.

Traube's rule, further interpretation of, 1493.

4:9:10-Triazadibenzanthracenes, prep. of derivatives of, as potential carcinogens, 4349.

1:4:5-Triazanaphthalenes, prep. from diaminopyridines, 303.

Triazines, prep. from dithiobiurets, 803.

1:3:5-Triazines, hexahydro-4:6-thiono-, prep. from dithiobiurets, 806.

Triazolol(5':4'-3:4)carbazole, 5:6:7:8-tetrahydro-1'-phenyl-, prep. of derivatives, 337.

Tribenzotetrazaporphin, prep., 3536.

Trienes containing the tachysterol chromophore, prep., 320.

o- and *p*-Trifluoromethyl groups, substituent effects of, 2929.

Trimethylamine, electric dipole moments of complexes of, 3901.
structure of complexes of, with nitrosyl chloride and with dinitrogen tetroxide, 1557.

Trinidad oil, trimethylnaphthalenes in, 1847.

Triphenylene, monosubstitution, 4482.
octahydro-, as intermediate in the Rapson triphenylene synthesis, 4479.

Triphenylenes, fluoro-, absorption spectra, 4468.
nitro-, absorption spectra, 4486.

Triphenylmethane, oxidation, 640.

Triterpenoid, tetracyclic stereochemistry, 2639.

Triterpenoids (D. H. R. Barton *et al.*). Part XX, 2639.
(F. S. Spring *et al.*). Parts XXXII—XLV, 596, 1316, 1607, 2120, 2125, 2131, 2606, 2610, 2616, 3072, 3126, 3371, 3378, 3992.

Tröger's base, prep., 991.

Tropane-3 α :6 β -diol, configuration of nitrogen atom in, 3504.

Tropolones, action of organometallic compounds on, 911.

Tropone, 3-hydroxy-, reactions with electrophilic reagents and substitution in 2-position, 1841.
4-hydroxy-, prep. of derivatives, 309.

Tropylium. See *cyclo*Heptatrienylium.

Trypanocides, synthesis. Parts III—V, 1850, 1853, 1858.

Trypanosomiasis, cinnolines and other heterocyclic types in relation to chemotherapy of. Part X, 4236.

Tryptamines, hydroxy-. Part III, 374.

Tryptophans and indoles, *Bz*-substituted, experiments on prep. Part III, 3499.
Bz-chloro-, prep., 3499.

Tuberculosis, chemotherapy. Parts V, VI, 4309, 4315.

Tumour inhibitors, potential, 2021.

L-Tyrosine, polymerisation and copolymerisation, 232.

U

Ullmann diaryl synthesis, mechanism, 3081.

Undeca-1:7-diene-1-carboxylic acid, prep. of all geometrical isomers, 3558.

Undeca-5:6-diene-8:10-diyonic acid, 4-hydroxy-, identity of nemotinic acid with, 4270.

Undec-10-enoic acid, selectivity of hydrogenation catalysts in prep. of, 3510.

Unsaturated compounds, reactions. Part XII, 1360.
systems, addition of free radicals to. Part XI, 3005.

Uracils, *N*-methyl-, configuration, 211.

Uranium dioxide, chemisorption of reducing gases on, 3939.
dioxide, oxidation of, 3946.
oxides. Parts VI, VII, 3939, 3946.

Urea, *O*-alkylation, 3551.

Ureas, *N*-aryl-*N'*-cyano-, reaction with arenesulphonyl chlorides, 1497.

Uridine-3' phosphate, dialkyl esters, hydrolysis, and its relevance to the question of phosphotriester linkages in ribonucleic acids, 4396.

Uronic acids, paper chromatography, 3554.

Ursa-9(11):13(18)-dien-3 β -ol, acetate, prep., 2606.

*iso*Ursa-9(11):14-dien-3 β -ol, 12-oxo-, acetate, reactions, 2120.

Ursanes, constitution and stereochemistry, 2610.

13 α -Ursan-3 β -ol, 12-oxo-, acetate, prep. and relation to α -amyrin, 3072.

Usnic acid. Part XI, 2166.

V

Valeric acid, (+)- γ -amino-, configuration, 1631.

γ -Valerolactone, α -aceto-, reaction with diazonium salts, 3470.

Vapour pressures of unsaturated hydrocarbons containing six carbon atoms, 1391.

Vapours, chromatography of. Part V, 1480.
insoluble, adsorption on water surfaces. Parts I, II, 4067, 4076.

Vibration bands, intensities. Parts VI, alkyl esters, 479; VII, the NH group, 483; VIII, the C \equiv N group, 487.

Vibrations, out-of-plane, of ethylene and aromatic molecules, approximate potential function for, 1813.

Vinca minor, glycosidic constituent of, 4206.

Viscosity of vapours of *n*-octane and 2:2:4-trimethylpentane, 2523.

Vitamin A₁, conversion into vitamin A₂, 2765.

Vitamin A₁, ethoxyanhydro-, identity of "Anhydrovitamin A₂" with a, 2763.

Vitamin A₁ acid nitrile, prep., 2765.

Vitamin A₂, prep. from vitamin A₁, 2765.

Vitamin D, studies in the field of. Parts I, II, 320, 329.

Vouacapenic acid, constitution, 1117.

Vouacapoua species, structure of diterpenes from, 1117.

W

Walden inversion and oxygen exchange in *sec*-butanol, 604.
and steroids. Parts XX—XXVI, 679, 686, 690, 694, 1375, 1891, 2876.

Water vapour, sorption by active carbon, 1760.

Wheat starch, normal and mottled, fractionation by elution in absence of oxygen, 4049.

Wolf-Kishner reduction procedure for sterically hindered carbonyl groups, 2056.

Worenine, tetrahydro-, experiments on synthesis, 79.

X

X-Ray studies in the caryophyllene series; the chloride and bromide from β -caryophyllene alcohol, 1254.

X-Rays, action on aliphatic amines in aqueous solution; formation of oximes, 2594.
use in examination of long-chain alkyl hydrogen phosphates, 1584.

Xanthine oxidase, chemistry. Part I, 1100.
crystalline, prep. from cow's milk, 1100.
Xanthenes and thioxanthenes. Part VI, 2755.
Xanthenes. Part IV, 3982.
Xanthenes, hydroxy-, prep., 3982.
Ximenynic acid, prep., 1740.
prep. and identity with santalbic acid, 1069.
[α - ^3H]*p*-Xylene, decomp. of benzoyl peroxide in, 561.
Xylenes, action of toluene-*p*-sulphonyl perchlorate on,
887.
3:4:1-Xylidine, chlorination, 2376.
D-Xylose 5-(barium phosphate), improved prep., 582.
Xylyl *p*-tolyl sulphones, isomeric, prep., 887.

Y

Yeast, baker's, polysaccharides of. Part I, 355.
brewer's, molecular structure of glycogen of, 867.
constitution of ribonucleic acid of. Part XVI, 2005.
stability of methylated ribonucleic acid of, to alkalis, 2005.
Yttrium, mechanism of a chromate process for separation of,
2409.

Z

Zanthoxylum clava-herculis, structure and stereochemistry of
neoherculin from, 995.