

## SUBJECT INDEX

- Acetylcholine, ability of venoms to render squid axons sensitive to, (ROSENBERG, PODLESKI) . . . . . 104
- Acriflavine, soluble RNA labelled with; fluorescence studies on, (CHURCHICH) . . . . . 274
- F-Actin, removal of nucleotides from, (KASAI, OOSAWA) . . . . . 223
- Adenosine triphosphate, contraction of single sarcomere on addition of, (FUKAZAWA, HASHIMOTO, TONOMURA) . . . . . 234
- Adenosine triphosphate, ———dependent transport of Rb into erythrocyte ghost (HASHIMOTO, YOSHIKAWA) . . . . . 135
- Adenosine triphosphate, hydrolysis of, by chloroplasts; light and dark stages in, (MARCHANT, PACKER) . . . . . 458
- Albumin, serum ———; frictional effects in migration of mixtures of, and hyaluronic acid (DAVIES, NICHOL, OGSTON) . . . . . 436
- Alcohol dehydrogenase, yeast ———; effect of  $\text{NAD}^+$  on  $\text{H}-^2\text{H}$  exchange of, (HVIDT, KÄGI, OTTESEN) . . . . . 290
- Algal species, separation of two light-induced E.S.R. signals in, (TREHARNE, BROWN, VERNON) . . . . . 324
- Aluminium, polydisperse ultracentrifugal patterns of ovalbumin in presence of, (GORDON, OTTESEN) . . . . . 453
- $\alpha$ -Amino acids, charge distributions and proton chemical shifts of, (DEL RE, PULLMAN, YONEZAWA) . . . . . 153
- Anacystis nidulans*, enhancement and de-enhancement effect in, (OWENS, HOCH) . . . . . 183
- Angiotensin II, ionization of tyrosyl group in, (VILALLONGA, POUCHAN) . . . . . 449
- Archibald principle, experiments employing ———; evaluation of ultracentrifugal schlieren patterns from, (KAPER, HESLINGA) . . . . . 149
- Ascites, glass-grown ——— cells; preliminary work with, in flow chamber for differential microfluorimeter of Change and Legal'ais (KOHEN) . . . . . 139
- Aspidistra, isolated ——— chloroplasts; time course of spectral shifts in red-absorption band and loss of photochemical oxygen-liberating capacity in, (THOMAS, GOEDHEER, VAN DEN BERG) . . . . . 333
- Axons, ability of venoms to render ——— of squids sensitive to curare and acetylcholine (ROSENBERG, PODLESKI) . . . . . 104
- Axons, conduction through, by curare; factors in venoms leading to block of, (ROSENBERG, YANG) . . . . . 116
- Bacteria, ribosomes of; effect of X-rays on, (GANGULY) . . . . . 59
- Bacterium, green photosynthetic ———, see *Chloropseudomonas ethylicum*
- Bacterium, halophilic ———, see *Halobacterium halobium*
- N-Bromosuccinimide, treatment of histidine residues with; appearance of fluorescence on, (BRAND, SHALTIEL) . . . . . 145
- Caesium chloride, density determination in preformed gradient of, (POLSON, LEVITT) . . . . . 88
- Caesium chloride, ———-treated DNA; electron microscopy of, (CRAWFORD, CRAWFORD) . . . . . 267
- Calcium, ——— exchange in isolated intestinal villi (RASMUSSEN *et al.*) . . . . . 250
- Calcium, extent of Sr substitution for, in hydroxyapatite (SCHOENBERG) . . . . . 96
- Carbamylcholine, apparent dissociation constants between, and receptor (HIGHMAN, PODLESKI, BARTELS) . . . . . 187
- Carbamylcholine, difference between tetra-caine and *d*-tubocurarine in competition with, (PODLESKI, BARTELS) . . . . . 387
- Cell membrane, of *Halobacterium halobium*; cation-sensitive dissolution of, (BROWN) . . . . . 425
- Cells, device for rapid collection of, from radioactive medium (LIN, GEYER) . . . . . 444
- Cells, photosynthetic activity in; structural changes related to, (PACKER, MARCHANT, MUKOHATA) . . . . . 23
- Cell wall, streptococcal ———; occurrence of lipid in, and further studies (HILL, JAMES, MAXTED) . . . . . 402, 414
- Ceruloplasmin, catalytic action of; role of Cu in, (BROMAN *et al.*) . . . . . 305
- Chenopodium album*, leaves of; isolation of water-soluble chlorophyll protein from, (YAKUSHIJI *et al.*) . . . . . 293
- Chloroplast, ——— membranes; structural changes correlated with photochemical phosphorylation in, (PACKER) . . . . . 12
- Chloroplasts, electron-transport system of; role of  $\alpha$ -tocopherylquinone in, (HENNINGER, CRANE) . . . . . 144
- Chloroplasts, hydrolysis of ATP by; light and dark stages in, (MARCHANT, PACKER) . . . . . 458
- Chloroplasts, illuminated spinach ———; isotopic composition of oxygen evolved by, with  $\text{K}_2\text{C}^{18}\text{O}_3$  as tracer (STERN) . . . . . 340
- Chloroplasts, isolated Aspidistra ———; time course of spectral shifts in red-absorption band and loss of photochemical oxygen-liberating capacity in,

- (THOMAS, GOEDHEER, VAN DEN BERG) 333
- Chloroplasts, photosynthetic activity in; structural changes related to, (PACKER, MARCHANT, MUKOHATA) . . . . . 23
- Chloroplasts, reduction of  $\text{Fe}(\text{CN})_3$  by, in presence of nitrogenous bases (HIND, WHITTINGHAM) . . . . . 194
- Chloroplasts, shrinkage of; action spectrum for, (IZAWA, ITOH, SHIBATA) . . . 349
- Chloroplasts, spinach —; light-induced changes of  $\alpha$ -tocopherylquinone in, (DILLEY, CRANE) . . . . . 142
- Chloropseudomonas ethylicum*, evidence of reaction center P 840 in, (SYBESMA, VREDENBURG) . . . . . 439
- Cholesterol, crystalline — in some pathological deposits in man; X-ray-diffraction study of, (BOGREN, LARSSON) . . . . . 65
- Cholinesterase, electric organ —; reversible inhibition of, by curare and curare-like agents (HASSÓN, LIEPIN) . . 397
- Chlorophyll, water-soluble — protein; isolation of, from leaves of *Chenopodium album* (YAKUSHIJI *et al.*) . . . 293
- Chlorophyll *a*, separation of forms of, and absorption changes in *Euglena* during aging (BROWN) . . . . . 299
- Chlorophylls *a* and *b*, ordinary and fully deuteriated —: spectral absorption changes of, (STRAIN, THOMAS, JATZ) . . 306
- Collagen, mammalian —-bearing structures; thermal transitions in, (RIGBY) . 279
- Conalbumin, specific binding of  $\text{Fe}(\text{III})$  and  $\text{Cu}(\text{II})$  to, (AASA *et al.*) . . . . . 203
- Copper, role of, in catalytic action of laccase and ceruloplasmin (BROMAN *et al.*) . 365
- Copper(II), specific binding of, to transferrin and conalbumin (AASA *et al.*) . . 203
- Crab, — nerve, see Nerve
- Curare, ability of venoms to render squid axons sensitive to, (ROSENBERG, PODLESKI) . . . . . 104
- Curare, axonal conduction by; factors in venoms leading to block of, (ROSENBERG, YANG) . . . . . 116
- Curare, —-like agents; reversible inhibition of electric organ cholinesterase by, (HASSÓN, LIEPIN) . . . . . 397
- Curare, reversible inhibition of electric organ cholinesterase by, (HASSÓN, LIEPIN) . . . . . 397
- Curie principle, note on, (MOSZYNSKI, HOSHIKO, LINDLEY) . . . . . 447
- Deoxyribonucleic acid, CsCl-treated —; electron microscopy of, (CRAWFORD, CRAWFORD) . . . . . 267
- Electric organ, — cholinesterase; reversible inhibition of, by curare and curare-like agents (HASSÓN, LIEPIN) . . 397
- Electron-transport system, of chloroplasts; role of  $\alpha$ -tocopherylquinone in, (HENNINGER, CRANE) . . . . . 144
- Electrophoresis, vertical gel —; simplified apparatus for, (RADHAKRISHNAMURTHY, CHAPMAN, BERENSON) . . . 276
- Emerson enhancement effect, mass-spectroscopic study of, (GOVINDJEE, OWENS, HOCH) . . . . . 281
- Enzymic methyl-transfer reactions, electronic aspects of, (PERAULT, PULLMAN) . . . . . 1
- Erythrocyte ghost, ATP-dependent transport of Rb into, (HASHIMOTO, YOSHIKAWA) . . . . . 135
- Escherichia coli*, permeability of, to organic compounds and inorganic salts (BOVELL, PACKER, HELGERSON) . . . . 257
- Euglena*, separation of forms of chlorophyll *a* and absorption changes in, during aging (BROWN) . . . . . 299
- Ferricyanide, reduction of, by chloroplasts in presence of nitrogenous bases (HIND, WHITTINGHAM) . . . . . 194
- Frog, — gastric mucosa, see Mucosa
- Frog, — muscle, see Muscle
- Gastric mucosa, — see Mucosa
- Halobacterium halobium*, cell membrane of; cation-sensitive dissolution of, (BROWN) . . . . . 425
- Histamine, action of, on permeability of frog gastric mucosa to K and water (VILLEGAS) . . . . . 377
- Histidine, treatment of residues of, with *N*-bromosuccinimide; appearance of fluorescence on, (BRAND, SHALTIEL) . . 145
- Hyaluronic acid, frictional effects in migration of mixtures of, and serum albumin (DAVIES, NICHOL, OGSTON) . . 436
- Hydroxyapatite, extent of Sr substitution for Ca in, (SCHOENBERG) . . . . . 96
- Inorganic salts, permeability of *E. coli* to, (BOVELL, PACKER, HELGERSON) . . . . 257
- Intestines, isolated villi from; Ca exchange in, (RASMUSSEN *et al.*) . . . . . 250
- Iron(III), specific binding of, to transferrin and conalbumin (AASA *et al.*) . . . . . 203
- Laccase, catalytic action of; role of Cu in, (BROMAN *et al.*) . . . . . 365
- Lipid, occurrence of, in streptococcal cell wall (HILL, JAMES, MAXTED) . . . . . 402, 414
- Mammals, collagen of, see Collagen
- Membrane, cell —, see Cell membrane
- Membranes, chloroplast —; structural changes correlated with photochemical phosphorylation in, (PACKER) . . . . . 12
- Methyl, enzymic —-transfer reactions; electronic aspects of, (PERAULT, PULLMAN) . . . . . 1
- 1-Methylthymine, photoproduct of, (STEWART) . . . . . 129
- Microfluorimeter, differential — of Change and Legallais; flow chamber for, (KOHEN) . . . . . 139
- Mucosa, frog gastric —; action of histamine on permeability of, to K and water (VILLEGAS) . . . . . 377
- Mucosa, frog gastric —; equivalent pore radius in, (VILLEGAS) . . . . . 131

- Muscle, frog —; effect of focussed ultrasound on permeability of, (HUGHES *et al.*) . . . . . 137
- Mutations, ultraviolet-induced —; mechanism of, (PULLMAN, PULLMAN) . . . . . 269
- Myoglobin, reversible —denaturation; magnetic investigation of, (GERSONDE, NETTER) . . . . . 455
- Nerve, intact crab —; relationship between phosphorus metabolism and sodium pump in, (BAKER) . . . . . 287
- Nicotinamide-adenine dinucleotide, oxidized —; effect of, on H-<sup>3</sup>H exchange of yeast alcohol dehydrogenase (HVIDT, KÄGI, OTTESEN) . . . . . 290
- Nitrogenous bases, reduction of Fe(CN)<sub>3</sub> by chloroplasts in presence of, (HIND, WHITTINGHAM) . . . . . 194
- Nucleotides, removal of, from F-actin (KASAI, OOSAWA) . . . . . 223
- Organic compounds, permeability of *E. coli* to, (BOVELL, PACKER, HELGERSON) . . . . . 257
- Ovalbumin, polydisperse ultracentrifugal patterns of, in presence of aluminium (GORDON, OTTESEN) . . . . . 453
- Oxygen, evolved by illuminated spinach chloroplasts with K<sub>2</sub>C<sup>18</sup>O<sub>3</sub> as tracer; isotopic composition of, (STERN) . . . . . 340
- Oxygen, photochemical —liberating capacity; loss of, in isolated *Aspidistra* chloroplasts (THOMAS, GOEDHEER, VAN DEN BERG) . . . . . 333
- Pathological deposits, in man; X-ray-diffraction study of crystalline cholesterol in, (BOGREN, LARSSON) . . . . . 65
- Peptides, — containing tryptophan or tyrosine; fluorescence of, (COWGILL) . . . . . 272
- Phosphorus, — metabolism; relationship between, and sodium pump in intact crab nerve (BAKER) . . . . . 287
- Phosphorylation, photochemical — in chloroplast membranes; structural changes correlated with, (PACKER) . . . . . 12
- Photobacterium phosphoreum*, light-emitting molecule in; investigations on identity of, (TERPSTRA) . . . . . 355
- Photosynthesis, activity of, in cells and chloroplasts; structural changes related to, (PACKER, MARCHANT, MUKOHATA) . . . . . 23
- Poly-S-carbobenzoxymethyl-L-cysteine, as model system for denaturation of non-helical proteins (HARRAP, STAPLETON) . . . . . 31
- Potassium, permeability of frog gastric mucosa to; action of histamine on, (VILLEGAS) . . . . . 377
- Protein, water-soluble chlorophyll —; isolation of, from leaves of *Chenopodium album* (YAKUSHIJI *et al.*) . . . . . 293
- Proteins, charge distributions and proton chemical shifts of, (DEL RE, PULLMAN, YONEZAWA) . . . . . 153
- Proteins, non-helical —; poly-S-carbobenzoxymethyl-L-cysteine as model system for denaturation of, (HARRAP, STAPLETON) . . . . . 31
- Proteins, ultrafiltration of, through cellophane membranes of enhanced permeability (ROSENFELD) . . . . . 241
- Pyridine nucleotide, photosynthetic —; response of, to light and substrates (LUNDEGÅRDH) . . . . . 70
- Radioactive medium, device for rapid collection of cells from, (LIN, GEYER) . . . . . 444
- Rhodospseudomonas spheroides*, isolation of photochemical reaction center in, (CLAYTON) . . . . . 312
- Rhodospseudomonas spheroides*, mutant of, unable to grow photosynthetically; absence of light-induced absorbancy changes in, (SISTROM, OHLSSON, CROUNCE) . . . . . 285
- Ribonucleic acid, soluble — labelled with acriflavine (CHURCHICH) . . . . . 274
- Ribosomes, bacterial —; effect of X-rays on, (GANGULY) . . . . . 59
- Rubidium, ATP-dependent transport of, into erythrocyte ghost (HASHIMOTO, YOSHIKAWA) . . . . . 135
- Salting-out curves, of multi-component systems with and without use of constant final volumes (STANLEY) . . . . . 442
- Sarcomere, single —; isolation of, and its contraction on addition of ATP (FUKAZAWA, HASHIMOTO, TONOMURA) . . . . . 234
- Serum albumin, — see Albumin
- Sodium pump, relationship between, and phosphorus metabolism in intact crab nerve (BAKER) . . . . . 287
- Spinach, — chloroplasts; light-induced changes of  $\alpha$ -tocopherylquinone in, (DILLEY, CRANE) . . . . . 142
- Spinach, illuminated — chloroplasts; isotopic composition of oxygen evolved by, with K<sub>2</sub>C<sup>18</sup>O<sub>3</sub> as tracer (STERN) . . . . . 340
- Squid, — axons, see Axons
- Stomach, mucosa of frog —; equivalent pore radius in, (VILLEGAS) . . . . . 131
- Streptococcus, cell wall of; occurrence of lipid in, and further studies (HILL, JAMES, MAXTED) . . . . . 402, 414
- Strontium, extent of substitution of, for Ca in hydroxyapatite (SCHOENBERG) . . . . . 96
- Tetracaine, difference between, and *d*-tubocurarine in competition with carbamylcholine (PODLESKI, BARTELS) . . . . . 387
- Tissue, interaction of connective — with aqueous urea; reversible and irreversible effects and rate analysis of influence of urea concentration and temperature and pH during, (ELDEN) . . . . . 37, 48
- $\alpha$ -Tocopherylquinone, in spinach chloroplasts; light-induced changes of, (DILLEY, CRANE) . . . . . 142
- $\alpha$ -Tocopherylquinone, role of, in electron-

- transport system of chloroplasts (HENNINGER, CRANE) . . . . . 144
- Transferrin, specific binding of Fe(III) and Cu(II) to, (AASA *et al.*) . . . . . 203
- Trautman's radius-cubed scale, use of photographic enlarger in application of, (KAPER, HESLINGA) . . . . . 149
- Tryptophan, peptides containing —; fluorescence of, (COWGILL) . . . . . 272
- d*-Tubocurarine, apparent dissociation constants between, and receptor (HIGHMAN, PODLESKI, BARTELS) . . . 187
- d*-Tubocurarine, difference between, and tetracaine in competition with carbamylcholine (PODLESKI, BARTELS) . . . 387
- Tyrosine, peptides containing —; fluorescence of, (COWGILL) . . . . . 272
- Tyrosyl group, in Angiotensin II; ionization of, (VILALLONGA, POUCHAN) . . 449
- Urea, interaction of aqueous — with connective tissue; reversible and irreversible effects and rate analysis of influence of urea concentration and temperature and pH during, (ELDEN) 37, 48
- Venoms, ability of, to render squid axons sensitive to curare and acetylcholine (ROSENBERG, PODLESKI) . . . . . 104
- Venoms, factors in, leading to block of axonal conduction by curare (ROSENBERG, YANG) . . . . . 116
- Villi, isolated intestinal —; Ca exchange in, (RASMUSSEN *et al.*) . . . . . 250
- Water, permeability of frog gastric mucosa to; action of histamine on, (VILLEGAS) 377
- X-irradiation, effect of, on bacterial ribosomes (GANGULY) . . . . . 59
- X-ray-diffraction, of crystalline cholesterol in some pathological deposits in man (BOGREN, LARSSON) . . . . . 65
- Yeast, — alcohol dehydrogenase; effect of NAD<sup>+</sup> on H-<sup>2</sup>H exchange of, (HVIDT, KÄGI, ØTTESEN) . . . . . 290