Acetate, in biosynthesis of testosterone, 305 in synthesis of adrenal cortical hormones,	effect of cholinesterase inactivation, 10 reactivity to quaternary ammonium com-
299	pounds, 5
Acetic acid, formation of isoprene from, 293	Androgens, excretion in bile, 328
Acetylcholine, and curare, reciprocal an-	Anemia, effects of antibiotics on, 406
tagonism, 48	Antibacterial action, mechanisms of, 275
and vomiting, 218	Antibiotic antagonism, dynamics, 183
contractile reponse to, in amphibian mus-	mode of action, 187
cle, 2	Antibiotic synergism, and antagonism, 175
contractile responses induced by, in	definition, 177
mammalian muscle, 12	dynamics, 183
effect on myasthenia gravis, 64	methods, 179
effect on neuromuscular transmission, 28	mode of action, 187
electrogenic action, 35	Antibiotics, antithyrotoxic effects, 409
excitatory and anti-curare properties, at	effects on adult ruminants, 404
neuromuscular junction, 1	effects on aminopterin toxicity, 407
reactivity of chronically denervated mam-	effects on anemia, 406
malian muscle to, 18	effects on calf scours, 402
Aconitine, and vomiting, 223	effects on chick embryo weight, 388
ACTH, effect in biosynthesis of steroid	effects on composition of tissues, in pigs,
hormones, 297	398
effect on uric acid, 260	effects on growth, mechanism of action,
C21O2 Adrenal hormonal precursors and	383
related urinary metabolites, 354	of calves, 400
Adrenal hormonal precursors, hydroxylated	of children, 405
at C ₁₇ , urinary metabolites related to,	effect on lambs, 403
355	effect on liver involvements, 408
hydroxylated at C ₁₇ and C ₂₁ , C ₁₁ and C ₁₇ ,	effect on mineral requirement, 394
and C11, C17 and C21, urinary metabo-	effect on protein requirement of poultry,
lites related to, 359	389
hydroxylated at C_{21} , C_{11} , C_{11} and C_{21} ,	effect on reproduction, in pigs, 399
urinary metabolites related to, 357	in pullets, 394
Adenine, chemical structure, 234	effect on vitamin B requirements in
Adrenergic blocking agents, human phar-	chicks, 392
macodynamic effects, 138	effect on vitamin requirements, in poul-
in treatment of hypertension, 137	try, 390
mode of action, 137	for ruminating animals, 400
Ali-esterase inhibitors, of tubercle bacilli,	growth and efficiency of food utilization
444	in pigs receiving, 396
Alkalies, effect on uric acid, 259	growth effect, in chicks and turkeys, 389
Alkyl onium salts, response of amphibian	in pigs, 395
muscle to, 5	in radiation injury, 412
Allantoic acid, chemical structure, 234	nutritional effects, 381
Allantoin, chemical structure, 234	storage in tissues, 410
Alloxan, chemical structure, 235	Anticholinesterase drugs, action on end-
effect on uric acid, 255	plate potential, 33
Aminopterin toxicity, effect of antibiotics	Anti-curare action, 38, 47
on, 407	aromatic OH group, 46
Amphibian muscle, contractile responses	cholinesterase inactivation, 56
induced by acetylcholine, 2	cholinesterase inhibitors, 39

Anti-curare action—Continued linearity, 95 competitive displacement, 51 historical development, 38 interaction at the endplate, 54 neostigmine, 39 phenyl trimethylammonium group, 42 physostigmine, 39 stimulatory action and, 50 Antithyrotoxic effects, of antibiotics, 409 Apomorphine, vomiting and, 209 Arfonad see Ganglionic blocking agents Aromatic OH group, anti-curare action, 46 Atophan, effect on uric acid, 257 Atropine, and vomiting, 223 Aureomycin, content, in calf blood, bile, urine, feces, 411 effect on Clostridia-type dietary, anaerobes in chick excreta, 385 effect on hemolytic anaerobes in chick excreta, 386 growth response to vitamins, with and without, 391 during growth period of pullets, effect on reproductive performance, 393 effect on calf scours, 403 effect on growth of calves, 400 in tissues, of chickens, 410 of pigs fed aureomycin, 412 ingested, effect on intestinal flora of chicks, 385 mechanisms of antibacterial action, 281 Avian muscle, reactivity to quaternary ammonium compounds, 25 Benemid, effect on uric acid, 261 Benodaine see Adrenergic blocking agents Benzoic acid, effect on uric acid, 258 Bile, excretion of steroid hormones in, 328 Binding, effect of chain length on, 69 Bioassays, acute effects on plain muscle, 122

Benemid, effect on uric acid, 261
Benodaine see Adrenergic blocking agents
Benzoic acid, effect on uric acid, 258
Bile, excretion of steroid hormones in, 328
Bile, excretion excretion of steroid hormones in, 328
Bile, excretion of steroid hor

measured concomitant factors, 104 measured effects, 92, 96 normal distribution, 100 notation used in, 87 quantal concomitant factors, 104 quantal effects, 93 regression lines, and errors, 111 measured effects, 111 quantal effects, 114 relation between dose and effect, 93 routine tests and collaborative assays, 128 slope ratio assays, 124 small variance, 101 standard preparations, 90 time factor, 107 duration of effect, 110 exposure time, 107 types of, 91 Biochemistry, of steroid hormones, recent trends in, 285 Bishop, Charles and John H. Talbott: Uric acid: its role in biological processes and the influence upon it of physiological, pathological and pharmacological agents, 231 Blood, and plasma, concentration of uric acid in, in non-gouty subject, 241 flows, regional, 161 pressure, effect of dihydrogenated ergot alkaloids, 148 effect of ganglionic blocking agents on, 142 effect of veratrum compounds on, 154 Borison, Herbert L., and S. C. Wang: Physiology and pharmacology of vomiting, 193 Brownlee, George: The wider aspects of the chemotherapy of tuberculosis, 421 Caffeine, chemical structure, 235 effect on uric acid, 259 Calf scours, effect of antibiotics on, 402 Caloric intake, effect on uric acid excretion, Calves, effect of antibiotics on growth of, 400 Carbohydrate intake, effect on uric acid excretion, 237 Carbonyl group, reactivity of, 75 Cardiac glycosides, and vomiting, 212 Carinamide, effect on uric acid, 261 Catenulin, mode of action, in tuberculosis, 441

Cephaline, and vomiting, 221 and quaternary ammonium compounds. Cepharanthine, mode of action, in tuberreciprocal antagonism, 48 culosis, 441 Cytosine, chemical structure, 234 Chain length, effect on binding, 69 Chemotherapeutic screening, 439 Dalmatian coach hound, uric acid excre-Chemotherapy, acquired resistance, 438 tion in, 251 hypersensitivity effect, 438 11-Dehydrocorticosterone, chemical strucof tuberculosis, 421 ture, 287 specific antibacterial, 437 Desoxycorticosterone, chemical structure, Chick embryo test, for tuberculosis, 432 287 Chick test, antituberculosis, compounds in, 11-Desoxycortisone, 287 Dialuric acid, effect on uric acid, 255 Dibenamine see Adrenergic blocking agents Chickens, effect of antibiotics on, growth of, Dibenzyline see Adrenergic blocking agents Chicks, antibiotic growth effect, 389 Dietary intake, effect on uric acid excretion, Children, effect of antibiotics on growth of, 236 Digestive tract, role in uric acid synthesis Chloromycetin, mechanisms of antibacterial and destruction, 239 Dihydrogenated ergot alkaloids, effect on action, 280 Cholesterol, acetate carbons distribution in, blood pressure, 148 201 human pharmacodynamics, 147 biosynthesis, 289 in therapy of hypertension, 146 from small molecules, 290 pharmacodynamic studies, 148 mechanism, 292 Dimercaptopropanol, in therapy of hyperrates and sites, 289 tension, 164 use in synthesis of adrenal cortical hor-Dontas, A. S., and S. W. Hoobler: Drug mones, 299 treatment of hypertension, 135 Choline, anti-curare action, 47 Dose and effect, constant variance, 99 Cholinesterase inactivation, effect on amindex of precision, 101 phibian muscle, 10 normal distribution, 100 effect on mammalian muscle, 17 relation between, 93 effect on myasthenia gravis, 63 small variance, 101 effect on neuromuscular transmission, Dose assays, 119 Doses, arithmetic scale of, 124 reactivity of chronically denervated mam-Drug efficiency, criterion, in tuberculosis, malian muscle to, 20 significance in anti-curare action, 57 Drug treatment, of hypertension, 135 Cholinesterase inhibitors, anti-curare action, 39 Electrogenic action, of acetylcholine, 35 Cholinesterase of neuromuscular junction, of quaternary ammonium compounds, 35 speculations on, 73 Embran, in therapy of hypertension, 157 Cinchophen, effect on uric acid, 257 Emetic chemoreceptor trigger zone, 194 Cinnamycin, use in tuberculosis, 442 Emetic complex, central nervous integration, 196 Copper sulfate, and vomiting, 217 Corticoids, excretion in urine, 337 Emetine, and vomiting, 221 Corticosteroids, excretion in bile, 329 Endplate, interaction at the, anti-curare in vivo synthesis, 303 action, 54 Corticosterone, chemical structure, 287 potential, action of anticholinesterase Cortisone, 287 drugs on, 33 Cross-over tests, 123 Endocrine gland secretions, effect on uric Curare, and acetylcholine, reciprocal acid, 254 Enzymes, and steroid hormones, interacantagonism, 48 and neostigmine, reciprocal antagonism, tions, 312 47 Ergot alkaloids, and vomiting, 222

Estradiol-17 β , chemical structure, 286 Estrogens, excretion in bile, 328 excretion in urine, 334 interconversions, 361 urinary, metabolism, 360

Fat intake, effect on uric acid excretion, 237 Feces, excretion of steroid hormones in, 328 Fraxinin, effect on uric acid, 260

Gaddum, J. H.: Bioassays and mathematics,

Ganglionic blocking agents, effects on blood pressure, 142

human pharmacodynamics, 140 in therapy of hypertension, 139 mode of action, 139

therapy with, 143

Gastrointestinal motility, nausea, vomiting, and, 205

Globicin, use in tuberculosis, 422

Gout, patients with, uric acid concentration in, 244

Growth effect, of antibiotics, in chicks and turkeys, 389

in pigs, 395

Growth, effect of antibiotics on, 381 response, to vitamins, with and without dietary aureomycin, 391

Guanine, chemical structure, 234

Guinea-pigs, testing anti-tuberculosis compounds in, 435

Gunnison, Janet B., and Ernest Jawetz: Antibiotic synergism and antagonism: an assessment of the problem, 175

β-Haloalkalamines see Adrenergic blocking agents

Hamsters, testing anti-tuberculosis compounds in, 435

Hepatic disease, excretion studies of steroid hormones, 325

Histamine, effect on uric acid, 256

Hoobler, S. W., and A. S. Dontas: Drug treatment of hypertension, 135

Hormones, adrenal cortical, biosynthesis,

urinary metabolites related to, 348 adrenal steroid, biogenesis, 303 steroid, and enzymes, interactions, 312 biosynthesis, 289, 296 biosynthesis, effect of ACTH in, 297 catabolic fate, 319

excretion in bile and feces, 328

excretion in urine, 329

excretion studies in hepatic disease, 325

in blood, 306

in blood, hormonal levels, 308

in blood, nature of circulating, 306

influence on enzyme concentration in tissues, 314

in vitro effects upon oxidative metabolism, 316

in vitro metabolism, by liver, 320

metabolic effects at enzymatic level,

metabolic fate of structural characteristics of, 342

nucleus, 286

recent trends in biochemistry of, 285

role of liver in catabolism, 319

synthesis from acetate and cholesterol,

transformation of preformed steroids,

1-Hydrazinophthalazine, effect on blood pressure, 160

in therapy of hypertension, 151, 158 pharmacodynamic studies in man, 159

Hydrocortisone, 287

Δ5-3β-Hydroxy steroids isolated from urine, 351

Hypertension, drug treatment, 135

effect of agents activating vascular reflex arcs, 151

effect of veratrum compounds, 151

therapy, with adrenergic blocking agents. 137

with centrally acting inhibitors of sympathetic vasomotor activity, 146

with dimercaptopropanol, 164

with drugs, 135

with drugs acting directly on vascular smooth muscle, 157

with ganglionic blocking agents, 139

with 1-hydrazinophthalazine, 158

with pyrogens, 164

with rauwolfia serpentina, 164

with sodium nitroprussides, 163

with thiocyanates, 162

with vitamins, 164

Hypoxanthine, chemical structure, 234

Imidazolines see Adrenergic blocking agents Index of precision, 101 Insulin, effect on uric acid, 255 Ipecac, and vomiting, 221

Ionic interaction, quaternary cation and receptor, 66

Isoniazid, mode of action, in tuberculosis, 440

Isoprene, formation from acetic acid, 293
Isotopic compounds, use in determining origin of uric acid, 233

Jawetz, Ernest and Janet B. Gunnison:
Antibiotic synergism and antagonism: an assessment of the problem,
175

Jukes, Thomas H., and William L. Williams: Nutritional effects of antibiotics, 381

Ketosteroids, excretion in urine, 335 Kidney, excretion of uric acid by, 247

Lambs, effect of antibiotics on growth of,

Lieberman, Seymour, and Sylvia Teich: Recent trends in the biochemistry of the steroid hormones, 285

Linearity, in bioassays, 95

 α -Lipoprotein, nature of, 307

β-Lipoprotein, nature of, 307

Liver extract, effect on uric acid, 259

Liver involvements, effect of antibiotics on, 408

Liver, role in catabolism of steroid hormones, 319

Log-dose-effect curve, linearity, 95 measured effects, 96 quantal effects, 97

Mammalian muscle, contractile responses induced by acetylcholine, 12

effect of cholinesterase inactivation, 17 reactivity to quaternary ammonium compounds, 15

Mathematics and bioassays, 87

Metabolism, oxidative, in vitro effects of steroid hormones upon, 316

C₂₁-Metabolites related to progesterone, 346 C₁₉-Metabolites related to testosterone, 343 Metabolites, urinary, adrenal hormonal precursors hydroxylated at C₁₇ re-

lated to, 355 C₂₁O₂ adrenal hormonal precursors re-

lated to, 354 related to adrenal cortical hormones,

related to adrenal hormonal precursors hydroxylated at C₁₇ and C₂₁, C₁₁ and C₁₇, C₁₁, C₁₇ and C₂₁, 359 related to adrenal hormonal precursors hydroxylated at C₂₁, C₁₁, C₁₁ and C₂₁, 357

Mineral requirement, effect of antibiotics on, 394

Morphine, vomiting and, 209

Mouse cornea test, tuberculosis, 433

Mouse, testing anti-tuberculosis compounds in, 434

Muscle, amphibian, contractile responses, induced by acetylcholine, 2

effect of cholinesterase inactivation, 10 reactivity to quaternary ammonium compounds, 5

avian, reactivity to quaternary ammonium compounds, 25

mammalian, contractile responses induced by acetylcholine, 12

effect of cholinesterase inactivation, 17 reactivity to quaternary ammonium compounds, 15

reactivity of chronically denervated to various ammonium compounds, 18

Myasthenia gravis, effect of acetylcholine, 64

effect of cholinesterase inactivation, 63 effect of quaternary ammonium compounds, 65

pharmacologic aspects, 62

pharmacological clues, 65

Mycobacidin, use in tuberculosis, 442

Mycobacterial species, growth requirements, 443

Myomycin, mode of action, in tuberculosis, 441

Nausea, and gastrointestinal motility, 205 Neomycin, mode of action, in tuberculosis, 441

Neostigmine, and curare, reciprocal antagonism, 47

anti-curare action, 39

Nervous pathways, in vomiting, 201

Nettle extract, effect on uric acid, 260

Neuromuscular junction, cholinesterase of, speculations on, 73

excitatory and anti-curare properties of acetylcholine at, 1

Neuromuscular transmission, effect of acetylcholine on, 28

effect of cholinesterase inactivation on, 26 effect of quaternary ammonium compounds on, 29

Nicotine, and vomiting, 221

Nisin, mode of action, in tuberculosis, 441 Notation, used in bioassays, 87

OH, alcoholic, effect on pharmacologic activity of alkyl onium compound, 70 grouping, effect on pharmacologic activity of alkyl onium compound, 70 phenolic, effect on pharmacologic activity of alkyl onium compound, 71

Papaverine, in therapy of hypertension, 157
Penicillin, dietary, effect on Clostridia-type
anaerobes in chick excreta, 385
effect on hemolytic anaerobes in chick
excreta, 386

effect on vitamin A metabolism in chicks, 393

mechanisms of antibacterial action, 277 Pentaguine, in therapy of hypertension, 151 Peptones, effect on uric acid, 260 Phenyl trimethylammonium group, anti-

curare action, 42 Physostigmine, and vomiting, 218 anti-curare action, 39

Pigs, effect of antibiotics on growth of, 395 Pilocarpine, and vomiting, 218 Pituitary, posterior, and vomiting, 218

Pituitrin, and vomiting, 218

Pregnanediol, excretion in urine, 336 5-Pregnenolone steroids isolated from urine, 351

Priscoline see Adrenergic blocking agents
Progesterone, biosynthesis, 305
chemical structure, 286
excretion in bile, 329
C-21 metabolites related to, 346
products formed by perfusion through

Protein, intake, effect on uric acid excretion, 247

requirement of poultry, effect of antibiotics on, 389

Protoveratrine, in therapy of hypertension, 157

Purine, chemical structure, 234 Pyrimidine, chemical structure, 234

adrenal gland, 295

Quaternary ammonium compounds, and curare, reciprocal antagonism, 48 effect on mammalian muscle, 15 effect on myasthenia gravis, 65 effect on neuromuscular transmission, 29 electrogenic action, 35 excitatory and anti-curare properties, at
the neuromuscular junction, 1
reactivity of avian muscle to, 25
reactivity of chronically denervated mammalian muscle to, 21
see also Ganglionic blocking agents
Quaternary ammonium ion action, possible mechanisms, 76
Quaternary cation and receptor, ionic interaction, 66

Quinidine, and vomiting, 217 Quinine, and vomiting, 217 effect on uric acid, 259

Rabbit cornea test, for tuberculosis, 432 Radiation injury, antibiotics in, 412 Rauwolfia serpentina, in therapy of hypertension, 164

Regitine see Adrenergic blocking agents Regression lines, 111

and errors, 111

Reproduction, effect of antibiotics on, in pigs, 399

in pullets, effect of antibiotics on, 394
Reproductive performance, in pullets, effect
of aureomycin on, 393

Riker, Walter F., Jr.: Excitatory and anticurare properties of acetylcholine and related quaternary ammonium compounds at the neuromuscular junction, 1

Ruminants, adult, effect of antibiotics on, 404

Salicylic acid, effect on uric acid, 256
Salts, rare earth, effect on uric acid, 259
Serum albumin, nature of, 307
Sodium nitroprusside, in therapy of hypertension, 163

Squalene, acetate carbons distribution in, 294

Staphylococcus enterotoxin, and vomiting, 223

Steroid conjugates, urinary, hydrolysis, 329

Steroid hormones see Hormones, steroid Steroids, preformed, in synthesis of steroid hormones, 299

urinary, glandular precursors, 339 isolation, 339

Streptomycin, mechanisms of antibacterial action, 278

mode of action, in tuberculosis, 441

Talbott, John H., and Charles Bishop:	Tuberculosis, antibiotics for, new, 442
Uric acid: its role in biological	chemotherapy of, 421
processes and the influence upon it of	the direct attack, 429
physiological, pathological and	chick embryo test, 432
pharmacological agents, 231	choice of strain and inoculum, 434
Tartar emetic, and vomiting, 220	criterion of drug efficiency, 435, 436
Teich, Sylvia, and Seymour Lieberman:	in vitro tests, 431
Recent trends in the biochemistry of	in vitro: in vivo tests, 431
the steroid hormones, 285	in vivo tests, 432
Terramycin, mechanisms of antibacterial	mode of action, of catenulin, 441
action, 281	of cepharanthine, 441
mode of action, in tuberculosis, 441	of isoniazid, 440
Testosterone, biosynthesis, 305	of myomycin, 441
from acetate, 305	of neomycin, 441
chemical structure, 286	of nisin, 441
C ₁₉ -metabolites related to, 343	of streptomycin, 441
Theobromine, chemical structure, 235	of terramycin, 441
Theophylline, chemical structure, 235	of viomycin, 442
effect on uric acid, 259	rabbit cornea test, 432
Thiocyanates, in therapy of hypertension,	route of inoculum, 435
162	substances inhibiting growth, 429
Thiolutin, use in tuberculosis, 442	surface-active anti-tuberculosis com-
Thymine, chemical structure, 235	pounds, 444
Thyroxin, effect on uric acid, 255	tests of chemotherapy of, in rabbits,
Tissues, composition, effect of antibiotics	dogs and monkeys, 433
on, in pigs, 398	Turkeys, antibiotics growth effect, 389
storage of antibiotics in, 411	z amego, ameronomos growen ences, see
Toxicity, animal units, 90	Umbreit, W. W.: Mechanisms of anti-
Tubercle bacilli, acid-fastness, 426	bacterial action, 275
rabelete bacilli, acia labellebe, 120	Successus action, 210
ali-esterase inhibitors 444	Uracil chemical structure 234
ali-esterase inhibitors, 444	Uracil, chemical structure, 234 Uric acid, catabolism, 252
biological properties of isolated lipins,	Uric acid, catabolism, 252
biological properties of isolated lipins, 426	Uric acid, catabolism, 252 chemical structure, 234
biological properties of isolated lipins, 426 biological significance of polysaccharide	Uric acid, catabolism, 252 chemical structure, 234 chemical structures of compounds re-
biological properties of isolated lipins, 426 biological significance of polysaccharide complexes, 427	Uric acid, catabolism, 252 chemical structure, 234 chemical structures of compounds re- lated to, 234
biological properties of isolated lipins, 426 biological significance of polysaccharide complexes, 427 biological significance of proteins, 428	Uric acid, catabolism, 252 chemical structure, 234 chemical structures of compounds re- lated to, 234 concentration, in gouty subjects, 244
biological properties of isolated lipins, 426 biological significance of polysaccharide complexes, 427 biological significance of proteins, 428 chemical composition, 425	Uric acid, catabolism, 252 chemical structure, 234 chemical structures of compounds re- lated to, 234 concentration, in gouty subjects, 244 in whole blood and plasma of non-
biological properties of isolated lipins, 426 biological significance of polysaccharide complexes, 427 biological significance of proteins, 428 chemical composition, 425 chemical composition, biological activity	Uric acid, catabolism, 252 chemical structure, 234 chemical structures of compounds related to, 234 concentration, in gouty subjects, 244 in whole blood and plasma of nongouty subject, 241
biological properties of isolated lipins, 426 biological significance of polysaccharide complexes, 427 biological significance of proteins, 428 chemical composition, 425 chemical composition, biological activity of their components, 425	Uric acid, catabolism, 252 chemical structure, 234 chemical structures of compounds related to, 234 concentration, in gouty subjects, 244 in whole blood and plasma of nongouty subject, 241 distribution, 241
biological properties of isolated lipins, 426 biological significance of polysaccharide complexes, 427 biological significance of proteins, 428 chemical composition, 425 chemical composition, biological activity of their components, 425 Cord factor, 428	Uric acid, catabolism, 252 chemical structure, 234 chemical structures of compounds related to, 234 concentration, in gouty subjects, 244 in whole blood and plasma of nongouty subject, 241 distribution, 241 effect of pathological agents on, 231
biological properties of isolated lipins, 426 biological significance of polysaccharide complexes, 427 biological significance of proteins, 428 chemical composition, 425 chemical composition, biological activity of their components, 425 Cord factor, 428 mode of action, 428	Uric acid, catabolism, 252 chemical structure, 234 chemical structures of compounds related to, 234 concentration, in gouty subjects, 244 in whole blood and plasma of nongouty subject, 241 distribution, 241 effect of pathological agents on, 231 effect of pharmacological agents on, 231
biological properties of isolated lipins, 426 biological significance of polysaccharide complexes, 427 biological significance of proteins, 428 chemical composition, 425 chemical composition, biological activity of their components, 425 Cord factor, 428 mode of action, 428 substances involved, 429	Uric acid, catabolism, 252 chemical structure, 234 chemical structures of compounds related to, 234 concentration, in gouty subjects, 244 in whole blood and plasma of nongouty subject, 241 distribution, 241 effect of pathological agents on, 231 effect of pharmacological agents on, 231 effect of pharmacologic agents on, 254
biological properties of isolated lipins, 426 biological significance of polysaccharide complexes, 427 biological significance of proteins, 428 chemical composition, 425 chemical composition, biological activity of their components, 425 Cord factor, 428 mode of action, 428 substances involved, 429 protective capsule, 430	Uric acid, catabolism, 252 chemical structure, 234 chemical structures of compounds related to, 234 concentration, in gouty subjects, 244 in whole blood and plasma of nongouty subject, 241 distribution, 241 effect of pathological agents on, 231 effect of pharmacological agents on, 231 effect of physiological agents on, 254 effect of physiological agents on, 231
biological properties of isolated lipins, 426 biological significance of polysaccharide complexes, 427 biological significance of proteins, 428 chemical composition, 425 chemical composition, biological activity of their components, 425 Cord factor, 428 mode of action, 428 substances involved, 429 protective capsule, 430 virulence, 428	Uric acid, catabolism, 252 chemical structure, 234 chemical structures of compounds related to, 234 concentration, in gouty subjects, 244 in whole blood and plasma of nongouty subject, 241 distribution, 241 effect of pathological agents on, 231 effect of pharmacological agents on, 254 effect of physiological agents on, 231 effect of therapeutic agents on, 254
biological properties of isolated lipins, 426 biological significance of polysaccharide complexes, 427 biological significance of proteins, 428 chemical composition, 425 chemical composition, biological activity of their components, 425 Cord factor, 428 mode of action, 428 substances involved, 429 protective capsule, 430 virulence, 428 Tubercle, calcification, 425	Uric acid, catabolism, 252 chemical structure, 234 chemical structures of compounds related to, 234 concentration, in gouty subjects, 244 in whole blood and plasma of nongouty subject, 241 distribution, 241 effect of pathological agents on, 231 effect of pharmacological agents on, 254 effect of physiological agents on, 231 effect of therapeutic agents on, 254 endogenous, intermediary metabolism,
biological properties of isolated lipins, 426 biological significance of polysaccharide complexes, 427 biological significance of proteins, 428 chemical composition, 425 chemical composition, biological activity of their components, 425 Cord factor, 428 mode of action, 428 substances involved, 429 protective capsule, 430 virulence, 428 Tubercle, calcification, 425 caseation, 424	Uric acid, catabolism, 252 chemical structure, 234 chemical structures of compounds related to, 234 concentration, in gouty subjects, 244 in whole blood and plasma of nongouty subject, 241 distribution, 241 effect of pathological agents on, 231 effect of pharmacological agents on, 231 effect of physiological agents on, 231 effect of therapeutic agents on, 254 endogenous, intermediary metabolism, 254
biological properties of isolated lipins, 426 biological significance of polysaccharide complexes, 427 biological significance of proteins, 428 chemical composition, 425 chemical composition, biological activity of their components, 425 Cord factor, 428 mode of action, 428 substances involved, 429 protective capsule, 430 virulence, 428 Tubercle, calcification, 425 caseation, 424 caseous lesion, fate, 425	Uric acid, catabolism, 252 chemical structure, 234 chemical structures of compounds related to, 234 concentration, in gouty subjects, 244 in whole blood and plasma of nongouty subject, 241 distribution, 241 effect of pathological agents on, 231 effect of pharmacological agents on, 231 effect of pharmacological agents on, 254 effect of physiological agents on, 231 effect of therapeutic agents on, 254 endogenous, intermediary metabolism, 254 excretion, 241
biological properties of isolated lipins, 426 biological significance of polysaccharide complexes, 427 biological significance of proteins, 428 chemical composition, 425 chemical composition, biological activity of their components, 425 Cord factor, 428 mode of action, 428 substances involved, 429 protective capsule, 430 virulence, 428 Tubercle, calcification, 425 caseation, 424 caseous lesion, fate, 425 hypersensitivity, 423	Uric acid, catabolism, 252 chemical structure, 234 chemical structures of compounds related to, 234 concentration, in gouty subjects, 244 in whole blood and plasma of nongouty subject, 241 distribution, 241 effect of pathological agents on, 231 effect of pharmacological agents on, 231 effect of pharmacological agents on, 254 effect of physiological agents on, 231 effect of therapeutic agents on, 254 endogenous, intermediary metabolism, 254 excretion, 241 by kidney, 247
biological properties of isolated lipins, 426 biological significance of polysaccharide complexes, 427 biological significance of proteins, 428 chemical composition, 425 chemical composition, biological activity of their components, 425 Cord factor, 428 mode of action, 428 substances involved, 429 protective capsule, 430 virulence, 428 Tubercle, calcification, 425 caseation, 424 caseous lesion, fate, 425 hypersensitivity, 423 necrosis, 423	Uric acid, catabolism, 252 chemical structure, 234 chemical structures of compounds related to, 234 concentration, in gouty subjects, 244 in whole blood and plasma of nongouty subject, 241 distribution, 241 effect of pathological agents on, 231 effect of pharmacological agents on, 231 effect of pharmacological agents on, 254 effect of physiological agents on, 231 effect of therapeutic agents on, 254 endogenous, intermediary metabolism, 254 excretion, 241 by kidney, 247 effect of dietary intake on, 236
biological properties of isolated lipins, 426 biological significance of polysaccharide complexes, 427 biological significance of proteins, 428 chemical composition, 425 chemical composition, biological activity of their components, 425 Cord factor, 428 mode of action, 428 substances involved, 429 protective capsule, 430 virulence, 428 Tubercle, calcification, 425 caseation, 424 caseous lesion, fate, 425 hypersensitivity, 423	Uric acid, catabolism, 252 chemical structure, 234 chemical structures of compounds related to, 234 concentration, in gouty subjects, 244 in whole blood and plasma of nongouty subject, 241 distribution, 241 effect of pathological agents on, 231 effect of pharmacological agents on, 231 effect of pharmacological agents on, 254 effect of physiological agents on, 231 effect of therapeutic agents on, 254 endogenous, intermediary metabolism, 254 excretion, 241 by kidney, 247 effect of dietary intake on, 236 in Dalmatian coach hound, 251
biological properties of isolated lipins, 426 biological significance of polysaccharide complexes, 427 biological significance of proteins, 428 chemical composition, 425 chemical composition, biological activity of their components, 425 Cord factor, 428 mode of action, 428 substances involved, 429 protective capsule, 430 virulence, 428 Tubercle, calcification, 425 caseation, 424 caseous lesion, fate, 425 hypersensitivity, 423 necrosis, 423	Uric acid, catabolism, 252 chemical structure, 234 chemical structures of compounds related to, 234 concentration, in gouty subjects, 244 in whole blood and plasma of nongouty subject, 241 distribution, 241 effect of pathological agents on, 231 effect of pharmacological agents on, 231 effect of pharmacological agents on, 254 effect of physiological agents on, 231 effect of therapeutic agents on, 254 endogenous, intermediary metabolism, 254 excretion, 241 by kidney, 247 effect of dietary intake on, 236
biological properties of isolated lipins, 426 biological significance of polysaccharide complexes, 427 biological significance of proteins, 428 chemical composition, 425 chemical composition, biological activity of their components, 425 Cord factor, 428 mode of action, 428 substances involved, 429 protective capsule, 430 virulence, 428 Tubercle, calcification, 425 caseation, 424 caseous lesion, fate, 425 hypersensitivity, 423 necrosis, 423 origin, 422	Uric acid, catabolism, 252 chemical structure, 234 chemical structures of compounds related to, 234 concentration, in gouty subjects, 244 in whole blood and plasma of nongouty subject, 241 distribution, 241 effect of pathological agents on, 231 effect of pharmacological agents on, 231 effect of pharmacological agents on, 254 effect of physiological agents on, 231 effect of therapeutic agents on, 254 endogenous, intermediary metabolism, 254 excretion, 241 by kidney, 247 effect of dietary intake on, 236 in Dalmatian coach hound, 251
biological properties of isolated lipins, 426 biological significance of polysaccharide complexes, 427 biological significance of proteins, 428 chemical composition, 425 chemical composition, biological activity of their components, 425 Cord factor, 428 mode of action, 428 substances involved, 429 protective capsule, 430 virulence, 428 Tubercle, calcification, 425 caseation, 424 caseous lesion, fate, 425 hypersensitivity, 423 necrosis, 423 origin, 422 permeability, 423	Uric acid, catabolism, 252 chemical structure, 234 chemical structures of compounds related to, 234 concentration, in gouty subjects, 244 in whole blood and plasma of nongouty subject, 241 distribution, 241 effect of pathological agents on, 231 effect of pharmacological agents on, 231 effect of pharmacological agents on, 254 effect of physiological agents on, 231 effect of therapeutic agents on, 254 endogenous, intermediary metabolism, 254 excretion, 241 by kidney, 247 effect of dietary intake on, 236 in Dalmatian coach hound, 251 origin of, 233

Uric acid—Continued

point of incorporation of isotopically
labeled compounds into, 236

role in the animal body, 232

role in biological processes, 231

synthesis and destruction, role of digestive tract in, 239

various phases of its metabolism, 233

Urine, excretion of steroids in, 329

Vasomotor activity, sympathetic, centrally acting inhibitors, 146 Veratrum alkaloids, and vomiting, 217 Veratrum compounds, effects on blood pressure, 154 in therapy of hypertension, 151 mode of action, 151 pharmacodynamic effects in man, 152 Viomycin, mode of action, in tuberculosis, 442 Vitamin A metabolism in chicks, effect of dietary penicillin on, 393 Vitamin B requirements, antibiotics effect on, in chicks, 392 Vitamin requirements, effect of antibiotics on, in poultry, 390 Vitamins, growth responses to, with and without dietary aureomycin, 391 in therapy of hypertension, 164 Vomiting, acetylcholine and, 218 aconitine and, 223 and gastrointestinal motility, 205 apomorphine and, 209 atropine and, 223

cardiac glycosides and, 212 center, 194 cephaline and, 221 copper sulfate and, 217 emesis-provoking drugs, 224 emetine and, 221 ergot alkaloids and, 222 ipecae and, 221 morphine and, 209 nervous pathways in, 201 nicotine and, 221 pharmacology, 193, 208 physiology, 193 physostigmine and, 218 pilocarpine and, 218 pituitrin and, 218 posterior pituitary and, 218 quinidine and, 217 quinine and, 217 staphylococcus enterotoxin and, 223 tartar emetic and, 220 veratrum alkaloids and, 217

Wang, S. C., and Herbert L. Borison:
 Pharmacology and physiology of vomiting, 193
 Williams, William L., and Thomas H. Jukes:

Nutritional effects of antibiotics, 381

Xanthine, chemical structure, 234 X-ray, effect on uric acid, 256

Yohimbine see Adrenergic blocking agents

The essential features of the virus and rickettsial diseases of man SECOND EDITION

Textbook of VIROLOGY

FOR STUDENTS AND PRACTITIONERS OF MEDICINE

By A. J. Rhodes, M.D., F.R.C.P., Research Associate, Connaught Medical Research Laboratories, and Professor of Virus Infections, School of Hygiene, University of Toronto; Virologist, Hospital for Sick Children, Toronto; and C. E. van Rooyen, M.D., D.Sc., M.R.C.P., Research Member, Connaught Medical Research Laboratories, and Professor of Virus Infections, School of Hygiene, University of Toronto

Second edition rewritten from cover to cover, owing to the rapid advances in the field of virology. Nothing short of drastic rewriting would have sufficed to cope with the new developments.

More space given to the specific treatment of virus and rickettsial diseases as currently practiced in North America.

More attention paid to laboratory diagnostic procedures of proven and practical value.

Selected bibliographies for further reading appended to each chapter.

Many new illustrations.

CONTENTS

The Fundamental Characteristics of Virus Infections • Skin Diseases • Exanthemata • Respiratory Diseases • Venereal Diseases • Eye Diseases • Arthropod-borne and Tropical Fevers • Infectious Hepatitis and Serum Jaundice • The Coxsackie Viruses • Encephalomyocarditis and Encephalomyelitis of Animals • Neurotropic Virus Diseases • Rickettsial Infections

568 pp., 76 figs., \$8.00

THE WILLIAMS & WILKINS COMPANY

Mt. Royal and Guilford Aves.

Baltimore 2, Maryland

The fundamental physical, chemical and biological problems which confront every bacteriologist

Basic Bacteriology

ITS BIOLOGICAL & CHEMICAL BACKGROUND

By CARL LAMANNA, Ph.D., Associate Professor of Bacteriology, and M. FRANK MALLETTE, Ph.D., Associate Professor of Biochemistry, both in Johns Hopkins University School of Hygiene and Public Health

Clear and oriented presentation, valuable to both student and graduate worker, of the nature of cytological, morphological, taxonomic, physiological and biochemical problems—from the point of view of the interests and needs of the bacteriologist.

Introduces subject matter new to textbooks of bacteriology; places a different and refreshing emphasis on certain traditional matters.

Gives you clear and fascinating explanations of bacteriological phenomena.

Emphasizes ideas and principles rather than factual knowledge.

Among the unique and noteworthy features:

Gram reaction-the most complete review in print.

Acid-fast stain-full explanation of the chemistry and bacteriology.

Metabolism-full discussion of especial value to biochemists.

Genotype variations—oxidative assimilation and endogenous catabolism—photosynthesis—bound water concept—and many other topics completely explained, stressing exactly that information which the bacteriologist most wants.

Of four important diagrams a large reproduction is provided in a pocket inside the back cover for your convenience:

Summary of the anaerobic metabolism of glucose and intracellular polysaccharide

Fermentation of pentoses and of glucose by way of the pentose-phosphate pathway

Reactions of carbohydrates induced by bacterial systems

Tricarboxylic acid cycle for the aerobic metabolism of pyruvate

680 pp., 100 figs., \$10.00

THE WILLIAMS & WILKINS COMPANY

Mt. Royal and Guilford Aves.



Baltimore 2, Maryland