

CONTENTS

NUMBER 1, SEPTEMBER, 1937

I. The Influence of Vitamin C Deficiency upon the Resistance of Guinea Pigs to Diphtheria Toxin. Glucose Tolerance. A. Sigal and C. G. King..... 1

II. The Acetylcholine-Choline-Esterase System. G. E. Hall and C. C. Lucas..... 10

III. Spermine, Zinc and Insulin. A. M. Fisher and D. A. Scott.... 21

IV. The Relative Effectiveness of Atropine and Novatropin on Gastric and Colonic Motility of the Unanesthetized Dog. J. P. Quigley..... 30

V. Does Digitalis Protect Against Diphtheria Toxin? Charles W. Edmunds and Ralph G. Smith..... 37

VI. Studies on the Mechanism of Morphine Hyperglycemia. The Rôle of the Adrenal Glands. R. C. Bodo, F. W. CoTui and A. E. Benaglia..... 48

VII. Effect of Dosage on Rate of Disappearance of Alcohol from the Blood Stream. Henry W. Newman, Arnold J. Lehman and Windsor C. Cutting..... 58

VIII. The Toxicity of Certain Codein Compounds for Male and Female Rats of Different Ages. Charles F. Poe, John G. Strong and Norman F. Witt..... 62

IX. Sodium Formaldehyde Sulphoxalate in Experimental Poisoning by Mercuric Chloride. Walter Modell, Harry Gold, Griffith J. Winthrop and Ellen B. Foot..... 66

X. The Effects of Morphine on Blood Sugar and Reflex Activity in the Chronic Spinal Cat. Richard C. Bodo and Chandler McC. Brooks..... 82

XI. The Toxicity of Orally Ingested Arsenic, Selenium, Tellurium, Vanadium and Molybdenum. Kurt W. Franke and Alvin L. Moxon..... 89

XII. Comparative Intravenous Toxicity of Some Monohydric Saturated Alcohols. A. J. Lehman and H. W. Newman..... 103

NUMBER 2, OCTOBER, 1937

XIII. The Toxicity and Anesthetic Potency of Some Alkoxy Benzoates and Related Compounds. A. R. McIntyre and R. F. Sievers... 107

XIV. The Effect of Staphylococcus Aureus Exotoxin on the Rabbit Heart. J. H. Dingle, H. E. Hoff, L. H. Nahum and B. W. Carey, Jr..... 121

XV. The Inhibition of Human Gastric Hypermotility by Atropine or Novatropin. J. P. Quigley..... 130

XVI. Hydrolysis of Salts of Barbituric Acids as Related to the Rate of Onset of Anesthesia. Milton T. Bush.....	134
XVII. Tetraalkylbarbituric Acids. Milton T. Bush and Thomas C. Butler.....	139
XVIII. Pharmacology of Deuterium Oxide. II. Evidence from Fish Melanophores for Sympathomimetic Action. Henry G. Barbour and Sinisha B. Bogdanovitch.....	148
XIX. A Further Study of Barbiturate-Picrotoxin Antagonism. John C. Krantz, Jr., C. Jelleff Carr and Frances F. Beck.....	153
XX. Studies of Cyclopropane. III. The Relation of Electrocardiographic Changes to the Arterial Concentrations of Oxygen, Carbon Dioxide, and Cyclopropane in Dogs Anesthetized with Cyclopropane. Benjamin H. Robbins and James H. Baxter, Jr.	162
XXI. The Relative Hypnotic Effects of Some Ureas of Varied Types. Axel M. Hjort, Edwin J. deBeer, Johannes S. Buck, Walter S. Ide and David W. Fassett.....	175
XXII. Anesthesia with Cyclopropane Derivatives. V. E. Henderson and S. F. MacDonald.....	182
XXIII. The Renal Excretion of Sulfanilamide. E. K. Marshall, Jr., Kendall Emerson, Jr. and W. C. Cutting.....	191
XXIV. The Distribution of Sulfanilamide in the Organism. E. K. Marshall, Jr., Kendall Emerson, Jr. and W. C. Cutting.....	196
NUMBER 3, NOVEMBER, 1937	
XXV. The Action of Isopropylantipyrine in Animal Experiments. K. Fromherz.....	205
XXVI. On the Relation of Potassium to the Blood Pressure Response to Epinephrine. P. S. Larson and George Brewer.....	213
XXVII. The Effect of Histamine on Salivary Secretion. O. S. Gibbs and H. H. McClanahan.....	218
XXVIII. The Antagonistic Action of Morphine and Atropine on the Human Stomach. Harry O. Veach.....	230
XXIX. The Effects of Ether, Chloroform and Cyclopropane on Cardiac Automaticity. Walter J. Meek, Hubert R. Hathaway and O. S. Orth.....	240
XXX. The Chemotherapy of Experimental Streptococcus Infections of Rabbits with Special Reference to Pyridine Compounds and Prontosil Soluble. John A. Kolmer, Herman Brown and George W. Raiziss.....	253
XXXI. Microscopic Observations of Bronchiolar Reactions. Torald Sollmann and A. J. Gilbert.....	272
XXXII. The Sensitivity of the Diphtheritic Heart to Digitalis. Charles W. Edmunds, Ralph G. Smith and Carl A. Moyer.....	286
XXXIII. Studies on the Denervated Kidney. III. The Effect of Ergotamine and Atropine on the Uricosuric Effect of Cinchophen. G. P. Grabfield, B. Prescott and W. K. Swan.....	293
XXXIV. The Effects of Ingested Lead on the Organism. I. Studies on the Rat. M. K. Horwitt and George R. Cowgill.....	300

CONTENTS

v

- XXXV. The Action of p-Aminophenol on Certain Tissue Oxidations. Frederick Bernheim, Mary L. C. Bernheim and Harry O. Michel. 311
 XXXVI. The Hydrolysis of Acetanilide by Various Tissues. Harry O. Michel, Frederick Bernheim and Mary L. C. Bernheim. 321

NUMBER 4, DECEMBER, 1937

- XXXVII. The Effect of Various Anesthetics and Certain Drugs on the Electrocardiogram of the Dog. Charles J. Betlach. 329
 XXXVIII. The Effect of Strychnine on Irritability and Certain Other Properties of Perfused Frog Heart. Paul L. McLain. 338
 XXXIX. The In Vivo Effects of Eserine on the Choline-Esterase System. G. W. Manning, J. Lang and G. E. Hall. 350
 XL. Further Experiments on Effect of Certain Quinine Derivatives on the Pneumococcus. John M. Johnston, H. B. Burchell, H. H. Permar and W. W. G. Maclachlan. 364
 XLI. Synergism of Ethyl Alcohol and Sodium Pentobarbital. James M. Dille and Raymond P. Ahlquist. 385
 XLII. Notes on the Observed Effects of Prostigmin in Man: Persons with Epilepsy. Leon J. Robinson. 393
 XLIII. Distribution of Administered Iodide and Thiocyanate in Comparison with Chloride, and Their Relation to Body Fluids. G. B. Wallace and B. B. Brodie, with assistance of Max M. Friedman and David Brand. 397
 XLIV. The Distribution of Administered Iodide and Thiocyanate in Comparison with Chloride in Pathological Tissues, and Their Relation to Body Fluids. By G. B. Wallace and B. B. Brodie, with assistance of Max M. Friedman and David Brand. 412
 XLV. The Respiratory Effects of Morphine, Codeine and Related Substances. VI. Compounds Derived from Morphine and Dihydromorphine by Substitution in 6-Carbon Position. Charles I. Wright and Fleming A. Barbour. 422
 XLVI. The Respiratory Effects of Morphine, Codeine and Related Substances. VII. Compounds Derived from Codeine and Dihydrocodeine by Substitution in 6-Carbon Position. Charles I. Wright and Fleming A. Barbour. 440
 XLVII. Specificity Relationships between Types of Arsenicals and Types of Trypanosomes. M. L. Kuhs and A. L. Tatum. 451
 XLVIII. The Effect of Anoxia on the Action of Nitrous Oxide in the Normal Human Subject. J. H. Bennett and M. H. Seevers. . . . 459

ILLUSTRATIONS

Effect of vitamin C depletion alone on glucose tolerance of guinea pigs (fig. 1).....	4
— of diphtheria toxin on glucose tolerance of vitamin C depleted guinea pigs (fig. 2).....	4
— of injections of diphtheria toxin on average weights of guinea pigs receiving different amounts of vitamin C daily (fig. 3).....	7
Hydrolysis of substrate by sera from various species of animals (fig. 1).....	19
Effect of novatropin and atropin on gastric and colonic motility (fig. 1).....	32
Blood alcohol concentration in dog (fig. 1).....	60
Toxicity curves for male rats of different ages (fig. 1).....	64
— curves for female rats of different ages (fig. 2).....	64
Growth curves of male rats receiving diets containing arsenic, selenium, tellurium, vanadium and molybdenum (chart 1).....	93
— curves of female rats receiving diets containing arsenic, selenium, tellurium, vanadium and molybdenum (chart 2).....	93
— curves of male rats receiving diets containing arsenic, selenium, tellurium, vanadium and molybdenum (chart 3).....	94
— curves of female rats receiving diets containing arsenic, selenium, tellurium, vanadium and molybdenum (chart 4).....	94
Effect of Staphylococcus aureus exotoxin on rabbit heart (fig. 1).....	124
— of Staphylococcus aureus exotoxin on rabbit heart (fig. 2).....	125
— of Staphylococcus aureus exotoxin on rabbit heart (fig. 3).....	126
— of atropine of gastric hypermotility (fig. 1).....	132
Contraction of melanophores in response to three different concentrations of deuterium oxide (fig. 1).....	150
Effects of deuterium oxide on ergotized melanophores (figs. 2 and 3).....	150
Combined effects of deuterium oxide and epinephrine (figs. 4 and 5).....	151
Mortality curve indicating superiority of picrotoxin over epinephrine as antidote against nembutal depression (fig. 1).....	156
Electrocardiographic records during cyclopropane anesthesia (fig. 1).....	168
— records during cyclopropane anesthesia (fig. 2).....	171
Anesthesia with cyclopropane derivatives (figs. 1 and 2).....	188
Sulfanilamide clearance plotted against urine flow in experiment on dog (fig. 1).....	193
— clearance plotted against urine flow in experiments on dogs (fig. 2).....	194
Concentrations of sulfanilamide in blood and spinal fluid of boy some weeks after recovery from meningitis (fig. 1).....	202
— of sulfanilamide in blood and spinal fluid of man with meningococcus meningitis (fig. 2).....	202
Action of isopropylantipyrine on cat (fig. 1).....	207
— of isopropylantipyrine on isolated rabbit intestine (fig. 2).....	208

Action of isopropylantipyrine on rabbit (fig. 3)	211
Effect of histamine administered intra-arterially on blood pressure and salivary secretion (fig. 1)	220
— of atropine on rapid continuous secretion caused by administration of histamine (fig. 2)	221
— of physostigmine on slow secretion caused by administration of histamine (figs. 3 and 4)	222
Ink-writer (fig. 1)	232
Action of morphine and atropine on stomach (fig. 2)	234
— of morphine and atropine on stomach (fig. 3)	235
— of morphine and atropine on stomach (fig. 4)	236
— of morphine and atropine on stomach (fig. 5)	237
Arrhythmias observed after injection of test dose of adrenalin in cyclopropane and chloroform anesthetics (fig. 1)	245
Normal rabbit bronchus (fig. 1)	276
— cat bronchus (fig. 2)	276
— puppy bronchiole (fig. 3)	278
Small bronchus of rabbit sensitized by egg albumin hypodermically (fig. 4)	281
Sensitivity of diphtheritic heart to digitalis (fig. 1)	290
Effects of ergotamine injections on urinary constituents before and after renal denervation (fig. 1)	294
Action of cinchophen on denervated kidney (fig. 2)	296
Effect of atropine on action of cinchophen on denervated kidney (fig. 3)	297
— of p-aminophenol on oxidation of xanthine by liver at pH 6.7 (fig. 1)	316
— of hydrogen ion concentration on rate of hydrolysis on acetanilide and chloracetyl-l-leucine (fig. 1)	324
Hydrolysis of acetanilide by liver suspension, pH 8.0, 30° (fig. 2)	325
Typical electrocardiograms of dog taken during third plane of surgical anesthesia (fig. 1)	331
Beginning depression of ventricular irritability by strychnine (fig. 1)	343
— recovery of ventricular irritability after strychnine perfusion (fig. 2)	344
Effects of eserine on choline-esterase system (graph 1)	352
— of eserine on choline-esterase system (graph 2)	354
Chronically eserinated dog—effect of vagus stimulation and acetylcholine (fig. 1)	356
— eserinated dog—effect of additional eserine (fig. 2)	357
— eserinated and atropinized dog—effect of vagus stimulation (fig. 3)	358
— eserinated and atropinized dog—effect of pilocarpine and acetylcholine (fig. 4)	358
Normal anesthetized dog—effect of continuous acetylcholine (fig. 5)	359
— anesthetized dog—effect of single large injection of eserine followed by acetylcholine (fig. 6)	360
— unanesthetized dog—effect of continuous acetylcholine (fig. 7)	361
Graphic representation of two experiments with mice infected with virulent pneumococci subsequently given hydroxyethylapoquinine or optochin (chart 1)	366
Experiment showing comparative survival of group of mice infected with virulent pneumococci and treated with apocuprein and optochin (chart 2)	367

Graphic representation of survival of infected and treated mice for each test compound (optochin and hydroxyethylapoquinine) (chart 3).....	367
Effect of varying number of infecting organisms (optochin) (chart 4).....	368
— of varying dose of compound (optochin and hydroxyethylapoquinine) upon survival of mice infected with constant dose of organisms (chart 5) ..	369
Results of experiments similar to those of chart 5 but at higher doses of test compounds (chart 6).....	369
Effect of delaying administration of compound one-half hour as compared with administration immediately following infection (chart 7).....	370
— of previous condition of mice upon survival in such experiments (chart 8).	370
Sleeping time (absence of righting reflex) after various doses of alcohol and sodium pentobarbital (fig. 1).....	386
— time after intravenous administration of various combinations of alcohol and sodium pentobarbital (fig. 2).....	387
Percentage of normal minute volume of rabbits one hour after injection of morphine and derivatives (fig. 1).....	430
— of normal carbon dioxide minute volume (fig. 2).....	431
— of normal minute volume of rabbit one hour after injection of dihydromorphine and derivatives (fig. 3).....	432
— of normal carbon dioxide minute volume one hour after injection of dihydromorphine and derivatives (fig. 4).....	433
Minute volume one hour after injection of codeine and derivatives in rabbit (fig. 1).....	444
Percentage of normal carbon dioxide minute volume (fig. 2).....	445
Minute volume one hour after injection of dihydrocodeine and derivatives in rabbit (fig. 3).....	446
Percentage of normal carbon dioxide minute volume after injection of dihydrocodeine and derivatives (fig. 4).....	447