CONTENTS

NUMBER 1, SEPTEMBER, 1938

I. Pharmacologic Studies on Diothane Hydrochloride. T. H. Rider with E. S. Cook .................................................. 1

II. On the Therapeutic Assay of Neoarsphenamine with Trypanosoma Equiperdum. C. A. Morrell, C. W. Chapman and M. G. Allmark .......................................................... 14

III. The Effect of Sodium Amytal, Sodium Barbital and Nembutal on the Electrocardiogram. Roberta Hafkesbring and Winona MacCalmont .................................................. 43

IV. Hypnotic Action of Certain Tertiary Butyl Aliphatic Amides. Allan D. Bass .......................................................... 50


VI. The Bronchio-Dilator Action of Magnesium and its Antagonistic Action (Dilator Action) Against Pilocarpine, Histamine and Barium Chloride. Victor G. Haury .................................................. 58

VII. Studies on the Native Glucosides of Digitalis Lanata with Particular Reference to their Effects upon Cardiac Efficiency and Their Toxicity. Gordon K. Moe and Maurice B. Visscher 65

VIII. Electrocardiographic and Blood Pressure Changes Induced by Posterior Pituitary Extract (Postlobin-V), and the Influence of Ephedrine Thereupon. K. I. Melville .................................................. 86

IX. Anesthesia and Liver Damage. II. The Effect of Anesthesia on the Blood Sugar, the Liver Glycogen, and Liver Fat. I. S. Ravdin, H. M. Vara, S. Goldschmidt, and L. E. Klingensmith 111

NUMBER 2, OCTOBER, 1938

X. Experiments with an “Antinecrotic” Material Prepared from Liver. H. M. Barrett, D. L. MacLean and E. W. McHenry .................................................. 131

XI. The Effect of the Alarm Reaction on the Absorption of Toxic Substances from the Gastro-Intestinal Tract. Hans Selye .................................................. 138

XII. Trypanocidal Activity and Arsenic Content of the Cerebrospinal Fluid after Administration of Arsenic Compounds. II. F. Hawking, T. J. Hennelly and W. T. Wales. With the assistance of W. Chinnick. Appendix by R. E. Barrett .................................................. 146

XIII. On the Spirocheticidal Action of the Arsphenamines on Spirocheta Pallida In Vitro. Harry Eagle .................................................. 164

XIV. Action of Sympathomimetic Amines on the Heart-Lung Preparation. J. M. Crismon and M. L. Tainter .................................................. 190

XV. The Hydrolysis of Homatropine and Atropine by Various Tissues. Frederick Bernheim and Mary L. C. Bernheim .................................................. 209
CONTENTS

XVI. The Effect of the Autonomic Hormones on the Thyrotoxic Heart. Bowman Wise and H. E. Hoff. 217

XVII. Anesthetic Effects of Chlorine Derivatives of Cyclopropane. V. E. Henderson. 225

XVIII. Studies on Cholinesterase Activity. I. A Manometric Method of Assaying Cholinesterase Action. M. Rinkel and M. Pijoan. 228

XIX. Studies of Morphine, Codeine, and Their Derivatives. XIII. A Clinical Study of Comparative Effects of Dihydroisocodeine and Codeine. Lowrey F. Davenport. 236


XXI. Studies on Phenothiazine. V. Fate of Phenothiazine in the Body. Floyd DeEds, C. W. Eddy and John O. Thomas. 250

XXII. The Renal Excretion of Sulfanilamide in Dogs. D. F. Green, J. B. Allison and M. L. Morris. 263


XXVII. A Microbioassay Method on Some Isolated Tissues. Gerhard Katz. 314

XXVIII. The Inactivation and Elimination of Picrotoxin. James M. Dille. 319


XXX. The Effect of Strychnine Sulphate on the Emotional Mimetic Functions of the Hypothalamus of the Cat. Jules H. Masserman. With the assistance of E. W. Haertig. 335

XXXI. The Influence of Room Temperature on the Action of Barbiturates. J. Raventós. 355

XXXII. The Chronic Effects on Dogs of Feeding Diets Containing Lead Acetate, Lead Arsenate and Arsenic Trioxide in Varying Concentrations. Herbert O. Calvery, Edwin P. Laug and Herman J. Morris. 364
CONTENTS

XXXIII. The Effect of Lead on Rats Fed Diets Containing Lead Arsenate and Lead Acetate. Edwin P. Laug and Harold P. Morris. 388

XXXIV. The Storage of Arsenic in Rats Fed a Diet Containing Calcium Arsenate and Arsenic Trioxide. Herman J. Morris and Edward W. Wallace. 411

XXXV. The Growth and Reproduction of Rats Fed Diets Containing Lead Acetate and Arsenic Trioxide and the Lead and Arsenic Content of Newborn and Suckling Rats. Harold P. Morris, Edwin P. Laug, Herman J. Morris and R. Lorimer Grant. 420

XXXVI. The Influence of Calcium and Phosphorus on the Storage and Toxicity of Lead and Arsenic. R. Lorimer Grant, Herbert O. Calvery, Edwin P. Laug and Herman J. Morris. 446

XXXVII. Variations in the Arginase Concentrations in the Livers of White Rats Caused by the Administration of Arsenic and Lead. Howard D. Lightbody and Herbert O. Calvery. 458

XXXVIII. The Effects of Vitamin B on Insulin Hypoglucemia and Sugar Tolerance. J. C. Burke and A. R. McIntyre. 485

XXXIX. Index. 479
ILLUSTRATIONS

Comparative anesthetic potencies (intradermal) of diothane and procaine (fig. 1) .......................................................... 2
— anesthetic potencies (intradermal) of diothane and procaine with epinephrine added (fig. 2) ........................................ 4
Comparison of anesthetic potencies (conjunction) of diothane and cocaine (fig. 3) .......................................................... 5
Durations of conjunctival anesthesia following varying duration of application (fig. 4) ...................................................... 6
Anesthetic effects of diothane and homolog on rabbit cornea (fig. 5) .............................................................................. 9
— effects (intradermal) of diothane and procaine mixtures (fig. 6) ................................................................. 11
Individual and composite regression lines computed from data of table 1 (fig. 1) ......................................................... 25
Average results of all experiments with histamine and pilocarpine (fig. 1) ............................................................ 61
Effects of histamine, pilocarpine and magnesium sulfate injected into perfusion fluid of excised guinea pig lungs (fig. 2) .................................................. 62
Heart rate, energy output, work, and efficiency after digilanan B with particular reference to decrease in efficiency after irregularities in rhythm have occurred (fig. 1) .................................................... 80
Action of digitalis glucoside on cardiac efficiency with controlled blood sugar concentration (fig. 2) .......................................................... 81
Effects of postlobin-V in large doses upon normal female chloroethanized dog (fig. 1) ......................................................... 91
— of postlobin-V in large doses upon normal male chloroethanized dog (fig. 2) .......................................................... 93
— of postlobin-V in large doses upon normal male chloroethanized dog after atropinization (fig. 3) ........................................ 94
— of postlobin-V in large doses upon normal female chloroethanized dog after double vagotomy (fig. 4) ......................... 95
— of postlobin-V in chloroethanized female dog after previous injections of ephedrine (fig. 5) ................................................. 96
— of postlobin-V in chloroethanized female dog after previous injections of ephedrine (fig. 6) ........................................ 97
— of postlobin-V after previous injections of ephedrine in vagotomized dog (fig. 7) .............................................................. 99
— of postlobin-V in intact unanesthetized dog (fig. 8) .......................................................... 101
— of postlobin-V after atropine (fig. 9) ......................................................................................................................... 102
— of postlobin-V after vagotomy (fig. 10) ...................................................................................................................... 103
— of postlobin-V in normal unanesthetized dog (fig. 11) ................................................................................................. 104
— of postlobin-V in unanesthetized dog after vagotomy (fig. 12) ........................................................................... 105
Response of blood sugar to administration of chloroform (fig. 1) .......................................................... 115
Influence of operation on blood pressure level during anesthesia (fig. 2) .......................................................... 116
Dependence of blood sugar level during anesthesia on concentration of glycogen in initial liver sample (fig. 3) ............... 117
vii
Blood sugar level following one hour of chloroform anesthesia (fig. 4) .... 118
Emphysematous guinea pig lung injected with histamine, then exposed to
"alarmng stimulus" (fig. 1) ............................................. 143
Immobilization of S. pallida in vitro by neosporphamine (fig. 1) .......... 171
— of S. pallida in vitro by arsphenamine (fig. 2) ........................ 171
— of S. pallida in vitro by metaminopara-hydroxyphenylarsenoxide (fig. 3) 172
— of S. pallida in vitro by silver arsphenamine (fig. 4) .................. 172
— of S. pallida in vitro by varying concentrations of neosporphamine
(fig. 5)  ............................................................................ 173
Relative anti-spirochetal action of neosporphamine in vitro (fig. 6) .... 176
— action of neosporphamine on S. pallida in vitro (fig. 7) .............. 177
Effect of serum on anti-spirochetal action of arsphenamine in vitro (fig. 8) 178
— of added tissue and anaerobiiasis on anti-spirochetal action of neoar-
sphenamine in vitro (fig. 9) ............................................. 179
— of added tissue (rabbit testis and liver) on anti-spirochetal action of
arsphenamine in vitro (fig. 10) ........................................... 180
— of amount of chancere suspension on anti-spirochetal action of neoar-
sphenamine in vitro (fig. 11) ........................................... 181
— of amount of tissue extractives on anti-spirochetal action of neoar-
sphenamine in vitro (fig. 12) ........................................... 182
— on anti-spirochetal activity of ageing neoarsphenamine in presence of
tissue extract (fig. 13) .................................................... 183
Apparent differences in anti-spirochetal action in vitro of same lot of neo-
sphenamine tested with different chancere emulsions (fig. 14) ....... 184
Comparison of arterenol and epinephrine in cat heart-lung preparation
(fig. 1) .............................................................................. 194
Effect of tyramine on cat heart-lung preparation (fig. 2) ................. 201
— of benzedrine on cat heart-lung preparation (fig. 3) ................. 202
Comparison of effects of ephedrine and epinephrine in cat heart-lung prepara-
tion (fig. 4) ................................................................. 205
Hydrolysis of atropine and homatropine by guinea pig liver (fig. 1) .. 211
— of homatropine by guinea pig liver (fig. 2) ........................... 211
Effect of physostigmine on hydrolysis of homatropine by guinea pig liver
(fig. 3) .............................................................................. 214
— of 10 mgm. mecholyl on normal rabbit (fig. 1) ....................... 220
— of 5 mgm. mecholyl on normal rabbit (fig. 2) ....................... 220
— of 5 mgm. mecholyl on thyrotoxic rabbit (fig. 3) ................. 220
— of adrenalin on normal rabbit (fig. 4) ............................... 222
— of adrenalin on thyrotoxic rabbit (fig. 5) .............................. 222
Inhibition of cholinesterase activity by varying quantities of prostigmin
(chart 1) .......................................................................... 232
Comparison of cholinesterase activity in serum before and after administra-
tion of prostigmin (chart 2) ............................................... 233
Effect of various temperatures on cholinesterase activity in vitro (chart 3) 234
Inhibition of cholinesterase activity by prostigmin in relation to time
(chart 4) .............................................................................. 234
Human uterus from caesarian section (fig. 1) .............................. 245
— uterus, non-pregnant (fig. 2) ........................................... 245
ILLUSTRATIONS

Guinea-pig uterus, 6 hours post-partum (fig. 3) ........................................ 245
Rabbit uterus, parous (fig. 4) ............................................................... 245
Guinea-pig uterus, 6 hours post-partum (fig. 5) ....................................... 246
—— uterus, 6 hours post-partum (fig. 6) ............................................... 247
Human uterus from caesarian section (fig. 7) .......................................... 248
Relation between electrode potential and percentage reduction of urinary product after administration of phenothiazine when pH is constant at 6.57. (fig. 1) .......................................................... 255
Comparison of synthetic thiol and urinary excretion product after administration of phenothiazine when electrode potential and pH when total oxidant and total reductant are equimolecular (fig. 2) ................. 260
Urea and sulfanilamide clearances plotted in cubic centimeters per minute against urine flow in cubic centimeters per minute per square meter of surface area for experiments on normal dog A (fig. 1) .......................... 265
Sulfanilamide/urea clearance ratios plotted against urine flow for experiments on normal dog A (fig. 2) ......................................................... 266
Urea and sulfanilamide clearances plotted in cubic centimeters per minute against urine flow in cubic centimeters per minute per square meter of surface area for experiments on dogs D, F and H (fig. 3) ......................... 266
Correlation of hydrogen-ion concentration, oxygen consumption and bactericidal action of phenothiazine-urine on E. coli (fig. 1) .......................... 290
Photographic record of correlation between bactericidal action of phenothiazine-urine, hydrogen-ion concentration, and oxygen tension (fig. 2) ......... 292
Effects of octyl and amyl nitrites on blood pressure of dog (chart 1) ......... 303
—— of octyl and amyl nitrites on perfused rabbit's heart (chart 2) ............... 305
—— of octyl nitrite on rings of isolated coronary vessels of steer (chart 3) .... 305
—— of octyl nitrite on blood pressure and coronary flow in dog (chart 4) .... 306
Spectral transmission of blood dilutions following inhalation of octyl and amyl nitrites (chart 5) ................................................................. 308
Setup for microassay on leech muscle (fig. 1) ....................................... 315
Leech muscle preparation as in fig. 1 (fig. 2) ......................................... 316
Moist chamber for microassay on mammalian tissues (fig. 3) .................... 317
Guinea-pig's ileum (fig. 4) ................................................................. 317
Theoretical factors involved in determination of essential elimination of picrotoxin by three procedures described in text (fig. 1) .......................... 322
Graph showing cardiac depression and stimulation by barbituric acid (fig. 1) 331
—— showing cardiac stimulants used with barbiturate depressants (fig. 2) .... 332
Tracing showing effect of intraperitoneal injection of strychnine sulphate on reactivity of hypothalamus in cat under ether anesthesia (fig. 1) ............... 348
—— showing effects of intrahypothalamic injection of strychnine sulphate on faradic reactivity of hypothalamus in cat under ether anesthesia (fig. 2) .... 349
Influence of room temperature on duration of sleep produced by sodium evipan, intraperitoneally in mice (fig. 1) ........................................ 358
—— of room temperature on incidence of narcosis and of death produced in mice by sodium evipan (intraperitoneal) (fig. 2) ............................ 359
—— of room temperature on incidence of narcosis and of death produced in mice by sodium phenobarbital (intraperitoneal) (fig. 3) ............... 359
ILLUSTRATIONS

Relation between dosage and duration of action of sodium evipan (intravenous) on rabbits (fig. 4) ........................................ 360
Effect of lead intake and onset of initial symptoms (fig. 1) .................. 373
Effect of lead on growth of young rats over period of 10 weeks (fig. 1) .... 397
Weekly lead balances in rats fed 2.64 mgm. of lead per gram of diet (fig. 2) . 398
Average dry weights of liver, kidney, brain and femur expressed in grams per kilogram live weight of rats (fig. 1) ......................... 432
Growth curves plotted from average weight of male rats on calcium and phosphorus diets (fig. 1) ........................................ 448
curves plotted from average weight of female rats on calcium and phosphorus diets (fig. 2) ........................................ 449
Glucose and insulin tolerance curves (fig. 1) .................................. 469
— and insulin tolerance curves (fig. 2) ........................................ 469
Insulin tolerance curves (fig. 3) .................................................. 470
Glucose and insulin tolerance curves (fig. 4) .................................. 470
Glucose and insulin tolerance curves (fig. 5) .................................. 471
— and insulin tolerance curves (fig. 6) ........................................ 471
— and insulin tolerance curves (fig. 7) ........................................ 472
— and insulin tolerance curves (fig. 8) ........................................ 472
— and insulin tolerance curves (fig. 9) ........................................ 473
— and insulin tolerance curves (fig. 10) ...................................... 474
— and insulin tolerance curves (fig. 11) ...................................... 474
— and insulin tolerance curves (fig. 12) ...................................... 474