

CONTENTS

NUMBER 1, MAY, 1934

I. A Study of Cyclopropane Anesthesia with Especial Reference to Gas Concentrations, Respiratory and Electrocardiographic Changes. By M. H. Seevers, W. J. Meek, E. A. Rovenstine and J. A. Stiles..... 1

II. The Effect of Posterior Pituitary Preparations on the Blood Flow of the Normal Intact Dog. By E. M. K. Geiling, J. F. Herrick, and Hiram E. Essex..... 18

III. The Action of Crystalline Thevetin, a Cardiac Glucoside of *Thevetia nerifolia*. By K. K. Chen and A. Ling Chen..... 23

IV. Studies of Morphine, Codeine and Their Derivatives. IV. Hydrogenated Codeine Isomers. By Nathan B. Eddy..... 35

V. Low Oxygen Tensions and Temperatures on the Actions and Toxicity of Dinitrophenol. By M. L. Tainter..... 45

VI. Interaction of Acetylcholine and Epinephrine on the Isolated Small Intestines of Various Animals. By Frederick Bernheim.. 59

VII. The Interaction of Acetylcholine, Epinephrine and Certain Other Drugs on the Isolated Small Intestine of the Rat. By Frederick Bernheim..... 68

VIII. Studies of Phenanthrene Derivatives. II. Mono-substitution Products, First Variations: The Effect of Muzzling the Hydroxy Group of 2- or 3-Hydroxy-Phenanthrene. By Nathan B. Eddy..... 75

IX. The Effects of Morphine and Its Derivatives on Intestinal Movements. II. The Effect of Morphine on the Pressures Developed by the Intestinal Musculature. By Hugo Krueger.. 85

X. The Rôle of Acetylcholine in Bladder Contractile Mechanisms and in Parasympathetic Ganglia. By V. E. Henderson and M. H. Roepke..... 97

XI. Aspirin and Calcium Aspirin. Their Action on Growing Bone. By N. Mutch..... 112

NUMBER 2, JUNE, 1934

XII. The Scientific Proceedings of the American Society for Pharmacology and Experimental Therapeutics. Twenty-fifth Annual Meeting, Held at New York City, New York, March 29, 30, 31, 1934. Edited by the Secretary, V. E. Henderson..... 127

XIII. The Effect of Codeine, Dihydrocodeine and Their Isomers on Blood Pressure in Unanaesthetized Dogs. By R. H. K. Foster..... 153

- XIV. The Effect of Codeine, Dihydrocodeine and Their Isomers on Blood Pressure in Anaesthetized Cats. By R. H. K. Foster . . . . 170
- XV. Pharmacology and Toxicology of the Azo Dye, Phenyl-azobenzene-diaminopyridine (Pyridium). By Robert P. Walton and Edwin H. Lawson . . . . . 200
- XVI. A Comparative Pharmacologic Study of the Three Phosphoric Esters of Orthocresol. By Maurice I. Smith with the assistance of E. F. Stohlman . . . . . 217
- XVII. Further Studies of the Methyl Cholines and Analogous Compounds. By Reid Hunt and R. R. Renshaw . . . . . 237

## NUMBER 3, JULY, 1934

- XVIII. Proof of the Existence of a Follicle-Stimulating and a Luteinizing Hormone in the Anterior Lobe of the Pituitary Body. By Zonja Wallen-Lawrence . . . . . 263
- XIX. The Cardiac Irregularities Produced by Ephedrine and a Protective Action of Sodium Barbital. By Walter J. Meek and M. H. Seevers . . . . . 287
- XX. Action of Morphine, Papaverine, Atropine, Pilocarpine, Pituitrin, Pitocin and Pitressin on Intestinal Propulsive Activity Determined in the Unanesthetized Dog by the Bolus Method. By J. P. Quigley, William H. Highstone and A. C. Ivy . . . . . 308
- XXI. Pigeon Emesis and Drug Action. By C. C. Lieb and Michael G. Mulinos . . . . . 321
- XXII. The Respiratory Effects of Morphine, Codeine and Related Substances. I. The Effect of Codeine, Isocodeine, Allopseudocodeine and Pseudocodeine on the Respiration of the Rabbit. By Charles I. Wright . . . . . 327
- XXIII. The Respiratory Effects of Morphine, Codeine and Related Substances. II. The Effect of Dihydrocodeine, Dihydroisocodeine, Dihydroallopseudocodeine and Dihydropseudocodeine. By Charles I. Wright . . . . . 343
- XXIV. A Histological Study of the Action of Estrin in Terminating Pregnancy. By Fred E. D'Amour and R. G. Gustavson . . . . . 353
- XXV. The Use of Pigeons in the Estimation of Digitalis Potency. By H. B. Haag and J. D. Woodley . . . . . 360

## NUMBER 4, AUGUST, 1934

- XXVI. Comparative Actions of Sympathomimetic Compounds: Bronchodilator Actions in Perfused Guinea Pig Lungs. By M. L. Tainter, John R. Pedden and Martha James . . . . . 371
- XXVII. Studies on Coronary Circulation. IV. A. The Duration of the Coronary Dilator Action of Theophylline Ethylenediamine. B. The Effect of Insulin-free Pancreatic Extract on the Coronary Circulation. By O. O. Stoland, A. M. Ginsberg, D. L. Loy, and P. E. Hiebert . . . . . 387
- XXVIII. A Colorimetric Method for the Determination of Nitrite in Blood. By Edward J. Stieglitz and Alice E. Palmer . . . . . 398

CONTENTS

v

XXIX. A Contribution to the Pharmacology of Narcotine. By Nathaniel Cooper and Robt. A. Hatcher.....	411
XXX. The Effect of Tissue Extract and Other Vascular Depressor Substances on Isolated Intestines. By Jean D. Craven and Forest D. McCrea.....	421
XXXI. The Effect of Dinitrophenol on the Spontaneous Activity of the Rat. By Victor E. Hall and Margaret Lindsay.....	430
XXXII. Diffusible and Non-diffusible Calcium in Blood and Cerebrospinal Fluid of Cats Intoxicated with Bulbocapine and of Human Beings under Bromide Treatment. By S. Katzenelbogen with the technical assistance of Theodore J. Czarski.....	435
XXXIII. The Effects of Morphine and Its Derivatives on Intestinal Movements. III. Peristalsis. By Hugo Krueger.....	440
XXXIV. The Diuretic Action of Pituitary Extracts and the Responsible Principle or Constituent. By K. I. Melville and D. V. Holman.....	459
XXXV. Aconite. IV. Electrocardiographic and Pharmacological Studies of Aconite and its Alkaloids. By Joseph B. Wolfe and James C. Munch.....	471
XXXVI. The Effect of Dinitrophenol upon the Circulation Time. By H. Freeman.....	477
XXXVII. A Comparative Study of Hydrastine, Bicuculline and Adlumine. By Arnold D. Welch and V. E. Henderson.....	482
XXXVIII. A Note on Bicucine. By Arnold D. Welch and V. E. Henderson...	492
XXXIX. Index.....	495

## ILLUSTRATIONS

External and sagittal views of be-still nuts (Fig. 1).....	25
Electrocardiographic changes caused by thevetin.....	27
Morphine, codeine and their derivatives (Fig. 1).....	36
Degree of metabolic stimulation produced in rats by a range of doses of dinitrophenol (Fig. 1).....	49
Maximum metabolic rates produced in individual rats by a range of doses of dinitrophenol (Fig. 2).....	50
Percentage mortality curves for dinitrophenol injected subcutaneously in rats (Fig. 3).....	52
Average curves for metabolic changes caused by 30 mgm. per kilogram dinitrophenol subcutaneously in rats (Fig. 4).....	54
Mouse jejunum (Fig. 1).....	61
Cat ileum (Fig. 2).....	62
— ileum (Fig. 2A).....	62
— ileum (Fig. 2B).....	62
— jejunum (Fig. 2C).....	62
Rabbit ileum (Fig. 3).....	64
Dog ileum (Fig. 4).....	65
Interaction of certain drugs on intestine (Fig. 1).....	70
— of certain drugs on intestine (Fig. 1A).....	70
— of certain drugs on intestine (Fig. 2).....	71
— of certain drugs on intestine (Fig. 3).....	72
Diagram of apparatus for recording movements of intestinal musculature under relatively isobaric or isometric conditions (Fig. 1).....	86
Effect of morphine on the pressures developed by the intestine (Fig. 2).....	88
Relationship between pressure as recorded by mercury manometer, distending force in intestinal balloon and volume of water in balloon for experiments of July 29, 1932, and July 19, 1932 (Fig. 3).....	91
Pressures in the intestine during the passage of a peristaltic wave (Fig. 4).....	91
Effect of morphine on the pressures developed by the intestine (Fig. 5).....	93
Acetylcholine in bladder mechanisms (Fig. 1).....	99
— in bladder mechanisms (Fig. 2).....	101
— in bladder mechanisms (Fig. 3).....	102
— in bladder mechanisms (Fig. 4).....	106
— in bladder mechanisms (Fig. 5).....	107
Growth curves (litter 4) (Fig. 1).....	115
— curves (litter 12) (Fig. 2).....	116
— curves (litter 8) (Fig. 3).....	117
— curves (litter 14) (Fig. 4).....	117
Aspirin and calcium aspirin (Plate 1).....	120
— and calcium aspirin (Plate 2).....	121

(A) Rate of hydrolysis of aspirin in aqueous solution at 15°C.; (B) rate of hydrolysis of calcium aspirin in aqueous solution at 15°C. (Fig. 5).....	123
Rate of hydrolysis of dry crystallised calcium aspirin at 37°C. (Fig. 6).....	123
— of hydrolysis of the dry protected salt (calcium aspirin—Coplans), at ordinary room temperature 10° to 20°C. (Fig. 7).....	124
Serum calcium values after calcium aspirin (Coplans) by mouth (Fig. 8).....	125
Effect of codeine isomers on blood pressure (Fig. 1).....	154
Blood pressure curves. Points on curves indicate averages of principle effects (Fig. 1).....	172
Effects of initial doses of codeine (Fig. 2).....	188
— of initial doses of pseudocodeine (Fig. 3).....	189
Injection of pyridium (1 per cent stock solution) (Figs. 1 and 2).....	201
Effects of pyridium and aniline on hemoglobin (Fig. 3).....	206
Azo dye—pharmacology and toxicology (Fig. 4).....	212
Effect of drug on red cell counts (Fig. 5).....	214
Free and conjugated blood phenols following the intravenous injection of the phosphoric mono-, di-, and tri-esters of orthocresol in the rabbit (Fig. 1).....	224
Total blood phenols following the intravenous injection of the three phosphoric esters of orthocresol in the rabbit (Fig. 2).....	224
Hormone in anterior lobe of pituitary body (Fig. 1).....	264
— in anterior lobe of pituitary body (Fig. 2).....	265
The effects of fractions B and C on the ovaries and uteri of immature rats (Fig. 3).....	290
Various cardiac irregularities seen afterephedrine (Fig. 1).....	299
Two records taken on the same animal without injection (Fig. 1).....	330
Structural formulae for codeine and the three derivatives studied (Fig. 2).....	335
Percentage change in the minute volume of the rabbit one hour after the injection of codeine hydrochloride, isocodeine acid tartrate, pseudocodeine hydrochloride and allopseudocodeine hydrochloride (Fig. 3).....	335
— change in the minute volume of the rabbits while inhaling a carbon dioxide air mixture one hour after the injection of codeine hydrochloride, isocodeine acid tartrate, pseudocodeine hydrochloride and allopseudocodeine hydrochloride (Fig. 4).....	337
Graphs showing continuous records of the oxygen consumption, respiratory rate, and minute volume after subcutaneous injection of codeine hydrochloride, isocodeine acid tartrate and pseudocodeine hydrochloride at the doses indicated (Fig. 5).....	339
Structural formulae for dihydrocodeine and the three derivatives studied (Fig. 1).....	344
Percentage change in the minute volume of the rabbits one hour after the injection of dihydrocodeine, dihydroisocodeine and dihydroallopseudocodeine as acid tartrates and dihydropseudocodeine hydrochloride (Fig. 2).....	346
— change in the minute volume of the rabbits while inhaling a carbon dioxide air mixture one hour after the injection of dihydrocodeine, dihydroisocodeine and dihydroallopseudocodeine as acid tartrates and dihydropseudocodeine hydrochloride (Fig. 3).....	348

Graphs showing continuous records of the oxygen consumption, respiratory rate and minute volume after subcutaneous injection of the salts of dihydrocodeine, dihydroisocodeine, dihydroallopseudocodeine and dihydro-pseudocodeine (Fig. 4).....	349
A transverse section of the uterus of a rat which received 10 rat units of estrin daily from the first to the tenth day after insemination and was killed on the eleventh day (Fig. 1).....	355
Control uterus eleven days pregnant (Fig. 2).....	355
Fibrosis in the basal half of the uterine mucosa of a rat which received 20 rat units of estrin daily from the first to the fifth day after insemination (shortest period of treatment) and was killed on the sixth day (Fig. 3).....	355
Control preparation from a fifteen-day pregnancy, a stage which shows greater development of reticulum fibres than any other of the control series (Fig. 4).....	355
Longitudinal section of uterus including the edge of an implantation site from a rat which received 50 rat units daily from the tenth to the fifteenth days and was killed on the sixteenth (Fig. 5).....	356
Control preparation from a fifteen-day pregnancy, taken transversely between implantation sites (Fig. 6).....	356
Placenta from an animal which received 50 rat units daily from the tenth to fifteenth days and was killed on the sixteenth (Fig. 7).....	357
Normal control for figure 7 (Fig. 8).....	357
Results of a typical lung perfusion, showing sequence of injections and characteristic bronchial responses (Fig. 1).....	373
Guinea pig intestine in Tyrode's solution (Fig. 1).....	422
— pig intestine in Ringer's solution (Fig. 2).....	423
Large intestine of guinea pig in Tyrode's solution (Fig. 3).....	424
Guinea pig, large intestine in Tyrode's solution (Fig. 4).....	424
Large intestine of guinea pig in Tyrode's solution (Fig. 5).....	426
Spontaneous activity of rats receiving dinitrophenol and of controls (Fig. 1) ..	432
Multiple balloons (Fig. 1).....	441
Record of intestinal movements obtained with triple balloon system of figure 1, B (Fig. 2).....	443
— of intestinal movements obtained with triple balloon system of figure 1, B (Fig. 3).....	443
— of peristaltic activity obtained with rapidly moving kymograph (Fig. 4) ..	444
— of peristaltic activity obtained with rapidly moving kymograph (Fig. 5) ..	444
— of intestinal movements with triple balloon system (Fig. 6).....	446
— of intestinal activity using double balloon of figure 1, A (Fig. 7).....	447
Diuretic action of pituitary extracts (Fig. 1).....	461
Typical record simultaneous kymogram, pneumogram and electrocardiogram: intravenous injection of aconite to anesthetized dog (Fig. 1).....	472-473
— electrocardiogram, showing lead III; aconine intravenously to anesthetized dog (Fig. 2).....	475
Condensed electrocardiograms showing characteristics of aconitine, benzoyl-aconine, and aconine on anesthetized dogs; intravenous injection (Fig. 3) ..	475
Circulation time vs. basal metabolic rate under dinitrophenol medication in 9 schizophrenic patients (Fig. 1).....	478