

## CONTENTS

### NUMBER 1, AUGUST, 1922

- I. On the Influence of Colloids on the Action of Non-colloidal Drugs. V. A Further Analysis of the Augmentor Effect of Lecithin on the Action of Pilocarpine. By W. Storm van Leeuwen and A. v. Szent Györgyi . . . . . 1
- II. On Rhododendron Poisoning. By S. W. Hardikar . . . . . 17
- III. The Relation of Histamine to Intestinal Intoxication. II. The Absorption of Histamine from the Intestine. By Jonathan Meakins and Charles Robert Harington . . . . . 45
- IV. Evaluation of the Hormone of the Infundibulum of the Pituitary gland in Terms of Histamine, with Experiments on the Action of Repeated Injections of the Hormone on the Blood Pressure. By John J. Abel and Charles A. Rouiller . . . . . 65

### NUMBER 2, SEPTEMBER, 1922

- V. Quantitative Studies in Chemotherapy. VI. Rate of excretion of Arsenicals, a Factor Governing Toxicity and Parasitocidal Action. By Carl Voegtlin and J. W. Thompson . . . . . 85
- VI. The Mechanism of the Straub Biologic Test for Morphine. By W. J. R. Heinekamp . . . . . 107
- VII. Ipecac in the Treatment of Blackhead in Turkeys. By H. W. Graybill. 115
- VIII. Effect of Adrenalin and Extracts of Pancreas and Liver on Flood Dextrose. By Ellison L. Ross and Lloyd H. Davis . . . . . 121
- IX. Quantitative Studies in Chemotherapy. VII. Effect of Ligation of the Ureters or Bile Duct upon the Toxicity and Trypanocidal Action of Arsenicals. By Carl Voegtlin, Helen A. Dyer, and Dorothy Wright Miller . . . . . 129
- X. Influence of Arsphenamine and Neoarsphenamine on the Epinephrine Content of the Adrenal Glands. By Baldwin Lucke, John A. Kolmer and Grayson P. McCouch . . . . . 153

### NUMBER 3, OCTOBER, 1922

- XI. A Study of the Colloidal Properties of Arsphenamine and Allied Products. By George W. Raiziss and Joseph L. Gavron . . . . . 163
- XII. The So-called Habituation to "Arsenic": Variation in the Toxicity of Arsenious Oxide. By Erich W. Schwartz . . . . . 181
- XIII. A Chemical Method of Assaying the Active Principles of Digitalis. By Arthur Knudson and Melvin Dresbach . . . . . 205
- XIV. The Oedema of Para-phenylenediamine, By O. S. Gibbs . . . . . 221

## NUMBER 4, NOVEMBER, 1922

- XV. Cumulative Action of Cobra Venom. By Arthur R. Cushny..... 233  
 XVI. Studies on the Action of Barium. By William Salant and Nathaniel  
 Kleitman..... 247  
 XVII. The Comparative Concentrations of Alcohol in Human Blood and  
 Urine at Intervals after Ingestion. By Walter R. Miles..... 265

## NUMBER 5, DECEMBER, 1922

- XVIII. The Effect of Epinephrine on Excised Strips of Frogs' Digestive  
 Tracts. By Charles M. Gruber..... 321  
 XIX. The Action of Morphine on the Vomiting Center in the Dog. By  
 Chauncey D. Leake..... 359  
 XX. Naturally Nephropathic Animals. The Ability of an Alkaline Solution  
 to Influence the Amount of Stainable Lipoid Material that Appears in the  
 Kidney following the Use of a General Anesthetic. By Wm. deB. Mac-  
 Nider..... 365  
 XXI. Picrotoxin Hyperglycemia. By Arthur L. Tatum..... 385  
 XXII. The Action of Quinine on Sugar Mobilization with its Bearing on the  
 Question of Glycogenolysis. By A. L. Tatum and R. A. Cutting..... 393

## NUMBER 6, JANUARY, 1923

- XXIII. The Importance of the Adrenal Glands in the Action of Pilocarpine,  
 Physostigmine and Strychnine. By Charles W. Edmunds..... 405  
 XXIV. An Investigation into the Chemotherapy of the Acridine Dyes in  
 Experimental Tuberculosis. By Maurice I. Smith..... 419  
 XXV. Toxicity and Actions of the Normal Butylamins. By P. J. Hanzlik. 435  
 XXVI. The Pharmacological Properties of Some Iso-urea Derivatives. By  
 Steward Basterfield..... 451  
 XXVII. The Comparative Stimulant Efficiency of Some Local and Systemic  
 Agents on Normal and Depressed Respiration, and Irritant Efficiency of  
 Some Agents. By P. J. Hanzlik..... 463  
 XXVIII. Studies on the Pharmacology of Sodium Citrate. I. The Influence  
 of Sodium Citrate on Respiration and Circulation. By William Salant  
 and Nathaniel Kleitman..... 481

## ILLUSTRATIONS

Augmentor action of kephaline on pilocarpine action (Fig. 1).....	5
Pure lecithin on pilocarpine action (Fig. 2).....	6
Concentration-action curve of pilocarpine (Fig. 3).....	10
— curve of histamine (Fig. 4).....	11
— curve of choline (Fig. 5).....	11
Action of various doses of pilocarpine on isolated gut (Fig. 6).....	12
— of various doses of choline on the isolated gut (Fig. 7).....	12
Augmentor influence of lecithin on histamine action (Fig. 8).....	13
Stimulating action of kephaline (Fig. 9).....	14
Cat, 2000 grams; paraldehyde anesthesia; tracheotomy (Fig. 1).....	26
Perfusion of the lungs of rabbit with 1:1,000,000 andromedotoxin in gum- Ringer (Fig. 2).....	28
Tracing of frog heart in situ (Fig. 3).....	32
Perfusion of isolated rabbit's heart (Fig. 4).....	33
— of frog heart in situ (Fig. 5).....	33
Tracings of uterus, respiration and blood pressure (Fig. 1).....	48
— of respiration and blood pressure (Fig. 2).....	49
— of uterus; respiration and blood pressure (Fig. 3).....	50
— of respiration and blood pressure (Fig. 4).....	51
— of respiration and blood pressure (Fig. 5).....	52
— of respiration and blood pressure (Fig. 6).....	57
— of uterus, respiration and blood pressure (Fig. 7).....	58
— of uterus, respiration and blood pressure (Fig. 8).....	58
— of blood pressure (Fig. 9).....	61
— of blood pressure (Fig. 10).....	61
— of blood pressure (Fig. 11).....	61
— of blood pressure (Fig. 12).....	62
Comparative action on the guinea pig's uterus, suspended in 40 cc. Locke solution, of the solution (0.000354 mgm. organic matter per cc.) obtained by decomposing the mercuric chloride cake (experiment III) and of histamine phosphate (0.01 mgm. per cc.) (Fig. 1).....	68
Effect on the blood pressure of a dog of an intravenous injection of a small portion (about $\frac{1}{10}$ ) of the entire filtrate, after removal of the mercury, from the proteid-mercuric chloride cake from 100 grams fresh glands (Fig. 2).....	72
Shows the powerful action of the pituitary picrate as compared with the dipicrate of histamine on the uterus of the virgin guinea pig (Fig. 3)....	74
One-half horn of the uterus of the virgin guinea pig in Tyrode's solution (Fig. 4).....	75
Effect of repeated injections of a solution of the pressor-oxytocic principle made from the proteid-mercuric chloride cake (Fig. 5).....	77

Shows the effect of repeated injections of the same solution of the pressor- oxytocic principle used in the injections in figure 5 (Fig. 6).....	78
— effect of first, second and third injections of a pressor phosphate (Fig. 7).	79
Quantitative studies in chemotherapy (Chart 1).....	93
— studies in chemotherapy (Chart 2).....	94
— studies in chemotherapy (Chart 3).....	95
— studies in chemotherapy (Chart 4).....	96
— studies in chemotherapy (Chart 5).....	102
Epinephrine assay of extract of right adrenal of rabbit XIII and preliminary assay of extract of right adrenal of rabbit XIX (Fig. 1).....	155
— assays of extracts of right adrenal glands of rabbits 16, 17, 23 and of one control rabbit (C) (Fig. 2).....	156
Arrangement for dialyzing in an atmosphere of nitrogen.....	167
Photograph from a tracheotomized cat poisoned with para-phenylenediamine (Fig. 1).....	223
Lower jaw of a poisoned cat from the right side (Fig. 2).....	225
Left side of the same cat as figure 2 (Fig. 3).....	225
Photograph showing the results of aortic perfusion with Ringer at 37°C. for one and one-half hours (Fig. 4).....	228
Lower jaw of the same cat as figure 4 dissected to show the tongue swelling (Fig. 5).....	228
Graph of calculated content of venom in tissues of rabbit 50 (Fig. 1).....	240
Fresh untreated frog hearts perfused with Ringer's solution alone, then with Ringer's solution containing barium chloride (Fig. 1).....	249
— untreated turtle hearts perfused with Ringer's solution alone, then with Ringer's solution containing barium chloride (Fig. 2).....	251
Turtle heart (Fig. 3).....	254
— heart previously perfused with aconitine (not shown in figure) (Fig. 4).....	257
Segments of small intestine of cats in aerated Locke's solution (Fig. 5).....	261
Errors in the analysis of 86 control samples made up with known alcohol content (Fig. 1).....	272
Comparative alcohol content of blood and urine during physical work (Fig. 2).....	279
Alcohol content of blood and urine with the subject quiet (Fig. 3).....	280
Comparative results for urine, blood, and plasma with the subject in the post-absorptive condition, and quilt (Fig. 4).....	281
The alcohol concentration in blood and urine produced by a more concen- trated beverage (Fig. 5).....	282
— alcohol in blood and urine of an "abstinent" produced by a 2.75 per cent beverage (Fig. 6).....	284
— alcohol in the blood and urine of an "abstinent" produced by 27.5 per cent beverage (Fig. 7).....	285
Concentration of alcohol in the blood and urine of an irregular drinker, 2.75 per cent dose (Fig. 8).....	286
— of alcohol in the blood and urine of an irregular drinker, 27.5 per cent dose (Fig. 9).....	287
Comparative alcohol concentration in blood and urine of a moderate drinker, 2.75 per cent beverage (Fig. 10).....	287

Relative alcohol concentration in blood and urine of an occasional user of wine, 2.75 per cent beverage (Fig. 11).....	289
— alcohol content of blood and urine following the ingestion of 27.5 per cent alcohol (Fig. 12).....	289
Comparative alcohol content of blood and urine of an occasional drinker in post absorptive condition, 2.75 per cent beverage (Fig. 13).....	290
— alcohol content of blood and urine in an occasional drinker following the ingestion of 27.5 per cent beverage (Fig. 14).....	291
Alcohol content of the blood and urine of a moderate drinker in the post-absorptive condition, 2.75 per cent beverage (Fig. 15).....	292
— content of the blood and urine in a moderate drinker in the post-absorptive condition, 27.5 per cent beverage (Fig. 16).....	292
— in the blood and urine of a subject who, on the day previous, had engaged in a great amount of physical exercise with the result that he was deficient in water, 2.75 per cent dose (Fig. 17).....	293
— in the blood and urine when the body is in a more normal condition of water balance, 2.75 per cent dose (Fig. 18).....	294
— in the blood and urine following 27.5 per cent beverage (Fig. 19).....	295
Typical results on abstinent and moderate drinkers for the comparative concentration of alcohol in urine, blood, and plasma following the ingestion of a liter of 2.75 per cent by weight alcohol beverage, taken without food (Fig. 20).....	295
— results on abstinent and moderate drinkers for the comparative alcohol concentration in urine, blood, and plasma following the ingestion of 100 cc. of 27.5 per cent by weight alcohol, taken without food (Fig. 21).....	296
Alcohol in the blood and urine of an habitual drinker after taking 1 liter of 2.75 per cent beverage (Fig. 22).....	298
— in the blood and urine of an habitual drinker after taking 27.5 per cent beverage (Fig. 23).....	299
Amount of alcohol in the blood and urine of an "excessive occasional user" after taking 2.75 per cent beverage (Fig. 24).....	301
— of alcohol in the blood and urine of an "excessive occasional user" after taking 27.5 per cent beverage (Fig. 25).....	301
The alcohol concentration in the urine as influenced by the retention of urine and frequent partial emptying of the bladder (Fig. 26).....	304
<i>Rana pipiens</i> (Fig. 1).....	327
— <i>pipiens</i> (Fig. 2).....	328
— <i>pipiens</i> (Fig. 3).....	329
— <i>catesbiana</i> (Fig. 4).....	330
— <i>pipiens</i> (Fig. 5).....	331
— <i>pipiens</i> (Fig. 6).....	332
— <i>catesbiana</i> (Fig. 7).....	335
— <i>catesbiana</i> (Fig. 8).....	335
— <i>catesbiana</i> (Fig. 9).....	336
— <i>catesbiana</i> (Fig. 10).....	337
— <i>catesbiana</i> (Fig. 11).....	340
— <i>catesbiana</i> (Fig. 12).....	341
— <i>pipiens</i> (Fig. 13).....	353

Rana pipiens (Fig. 14).....	354
Cat. Blood pressure and uterus tracings (Fig. 1).....	410
— same as figure 1, except that the adrenal glands have been removed (Fig. 2).....	410
— with adrenals intact (Fig. 3).....	413
Death-rate of guinea-pigs inoculated with Bacillus tuberculosis (Chart 1)...	429
Average weight curve of control and treated animals (Chart 2).....	431
Effects of normal butylamins on the circulation in dogs (Fig. 1).....	441
— of monobutylamin (1:75,000, end concentration) on longitudinal strip of nicotinized rabbit's intestine (Fig. 2).....	444
— of dibutylamin (1:7500, end concentration of base) on longitudinal strip of rabbit's intestine in 150 cc. Tyrode's solution at 38°C.....	445
— of tributylamin (1:15,000, end concentration) hydrochloride on strip of nicotinized rabbit's pregnant uterus (Fig. 4).....	445
— of dibutylamin (1:2500 base) on perfused vessels of frog's extremities (Fig. 5).....	446
— of hypnotics on body temperature of rabbit (Fig. 1).....	457
— of hypnotics on body temperature of rabbit (Fig. 2).....	457
— of water at 15°C. (subcutaneously) on respiration of normal rabbit (1.7 kgm.) (Fig. 1).....	468
— of 20 per cent camphor oil (subcutaneously) on respiration of normal rabbit (1.7 kgm.) (Fig. 2).....	468
Respiratory stimulant efficiency of water at different temperatures injected hypodermically in rabbits (Fig. 3).....	470
Effects of 20 per cent camphor oil (subcutaneously) on morphinized rabbit (1.5 kgm.) (Fig. 4).....	473
— of citrate on respiration and blood pressure in dog (Fig. 1).....	483
— of citrate on respiration and blood pressure in cat (Fig. 2).....	485
— of citrate on heart and blood pressure in dog (Fig. 3).....	492
Isolated turtle heart perfused with M 1200 sodium citrate (Fig. 4).....	494