

Per.
v. 21
1923

646

CONTENTS

NUMBER 1, FEBRUARY, 1923

- I. Studies on the Pharmacology of Cadmium and Zinc with Particular Reference to Emesis. By Erich W. Schwartz and Carl L. Alsberg..... 1
- II. The Carbon Monoxide Content of Tobacco Smoke and Its Absorption on Inhalation. By J. Percy Baumberger..... 23
- III. The Nicotine Content of Tobacco Smoke. By J. Percy Baumberger..... 35
- IV. The Amount of Smoke Produced from Tobacco and Its Absorption in Smoking as Determined by Electrical Precipitation. By J. Percy Baumberger..... 47
- V. Chronic Intoxication by Small Quantities of Cadmium Chloride in the Diet. By Carl O. Johns, A. J. Finks and Carl L. Alsberg..... 59
- VI. The Action of Furfural. By Hugh McGuigan..... 65

NUMBER 2, MARCH, 1923

- VII. The Action of Certain Depressant Drugs on the Sensory Threshold for Faradic Stimulation in Human Subjects and the Effect of Tobacco Smoking on this Action. By W. Hale and G. P. Grabfield..... 77
- VIII. On the Biological Significance of Lipoids. The Action of Kephalin and Lecithin. By W. Storm van Leeuwen and A. v. Szent Györgyi..... 85
- IX. On the sensitivity of Different Nerve Endings to Atropine. By V. E. Henderson..... 99
- X. On the Active Principles of the Pituitary Gland. By Harold Ward Dudley..... 103
- XI. Comparative Toxicity of Inorganic Lead Compounds and Metallic Lead for Pigeons. By P. J. Hanzlik and Elizabeth Presho..... 123
- XII. Therapeutic Efficiency of Various Agents for Chronic Poisoning by Metallic Lead in Pigeons. By P. J. Hanzlik and Elizabeth Presho..... 131
- XIII. Comparative Toxicity of Metallic Lead and Other Heavy Metals for Pigeons. By P. J. Hanzlik and Elizabeth Presho..... 145
- XIV. The Biological Action of Potassium, and Its Radio Activity. By H. Zwaardemaker..... 151

NUMBER 3, APRIL, 1923

- XV. On the Detection of Benzene in Cadavers. By Alexander O. Gettler.... 161
- XVI. A Study of the Rate of Deposition and Paths of Absorption of Strontium in the Rat. By Ethel May Kinney and E. V. McCollum..... 165
- XVII. The Action of Camphor, Menthol and Thymol on the Circulation. By Reginald St. A. Heathcote..... 177
- XVIII. Scientific Proceedings of the American Society for Pharmacology and Experimental Therapeutics..... 191

NUMBER 4, MAY, 1923

- XIX. The Intra-hepatic Administration of Drugs. By J. A. Waddell. 225
 XX. Does the Reaction to Adrenalin Obey Weber's Law? By D. Murray
 Lyon. 229
 XXI. The Toxicity of Carbon Tetrachloride: In Relation to Liver Function
 as Tested by Phenoltetrachlorophthalein. By Paul D. Lamson and A. J.
 McLean. 237
 XXII. The Salicylates. XIV. Liberation of Salicyl from and Excretion of
 Acetylsalicylic Acid. By P. J. Hanzlik and Elizabeth Presho. 247

NUMBER 5, JUNE, 1923

- XXIII. On the Entrance of Convulsant Dyes into the Substance of the
 Brain and Spinal Cord after an Injury to these Structures. By H. C.
 Syz. 263
 XXIV. The Effect of Quinine Intoxication on the Respiratory Center of the
 Rabbit. By H. Sugata and A. L. Tatum. 293
 XXV. Experimental Research on the Distribution and Elimination of
 Organic Arsenic Compounds after Intravenous Administration. By F.
 M. R. Bulmer. 301
 XXVI. Histological Changes Produced Experimentally in Rabbits by
 Bismuth. By Baldwin Lucke and Joseph V. Klauder. 313
 XXVII. Barbitol Narcosis and Hypothermia in Pigeons. By Max M. Ellis. . . 323
 XXVIII. The Respiratory Exchange and Blood Sugar Curves of Normal and
 Diabetic Subjects after Epinephrin and Insulin. By Richard S. Lyman,
 Elizabeth Nicholls and Wm. S. McCann. 343
 XXIX. The Rôle of the Liver in the Removal of Hemoglobin from the Blood
 Stream. By Sanford M. Rosenthal. 367

NUMBER 6, JULY, 1923

- XXX. The Free Sugar Content of the Liver and Its Relation to Glycogen-
 synthesis and Glycogenolysis. By Carl F. Cori, G. T. Cori and G. W.
 Pucher. 377
 XXXI. Notes on the Pharmacology and Therapeutics of Oil of Chenopodium
 and Investigations on the Anthelmintic Value of Its components. By
 Daniel M. Molloy. 391
 XXXII. The Influence of the Arterial Blood Supply to the Liver on Hemo-
 globin Concentration in Certain Acute Conditions. By Paul D. Lamson,
 A. F. Abt, C. A. Oosthuisen and S. M. Rosenthal. 401
 XXXIII. Bio-physical Studies of the Effects of Various Drugs upon the
 Temperature of the Brain and the Liver. By George W. Crile, Amy F.
 Rowland and S. W. Wallace. 429
 XXXIV. A Pharmacological and Clinical Examination of Benzyl Mandelate.
 By David I. Macht. 443

ILLUSTRATIONS

Apparatus for the absorption of CO in tobacco smoke (Fig. 1).....	25
Nicotine absorption apparatus (Fig. 1).....	37
Diagram of smoke precipitation (Fig. 1).....	49
Diagram of the electrical connections of the smoke precipitator (Fig. 2)...	50
Photograph of smoke precipitator with cigarette in position for determining total smoke (Fig. 3).....	51
View of precipitator showing electrical connections (Fig. 4).....	51
Intoxication by cadmium chloride (Chart 1).....	61
Intoxication by cadmium chloride (Chart 2).....	62
Intoxication by cadmium chloride (Chart 3).....	63
Action of drugs on faradic stimulation (Fig. 1).....	80
Action of drugs on faradic stimulation (Fig. 2).....	81
Action of drugs on faradic stimulation (Fig. 3).....	82
Action of drugs on faradic stimulation (Fig. 4).....	83
Influence of lecithin and kephalin on blood pressure (Fig. 1).....	88
Influence of lecithin and kephalin on the hypodynamic frog heart (Fig. 2)..	89
Activity of the picrate on uterine muscle after recrystallization from 50 per cent alcohol (Fig. 1).....	112
Comparison of fraction <i>A</i> with histamine (oxytocic activity) (Fig. 2).....	114
Comparison of uterine activities of <i>A</i> and <i>R</i> (Fig. 3).....	114
Effect of <i>A</i> and <i>R</i> on the blood pressure (Fig. 4).....	116
Effect of <i>A</i> and <i>R</i> on the blood pressure (Fig. 5).....	116
Extraction of <i>A</i> by butyl alcohol; distribution of oxytocic principle (Fig. 6).....	117
Extraction of <i>A</i> by butyl alcohol; distribution of pressor principle (Fig. 7).....	117
The comparative solubility of lead in low concentrations of various salts in 0.2 per cent hydrochloric acid (<i>A</i>), and in 0.2 per cent hydrochloric acid and food (<i>B</i>), in vitro at 38°C. (Fig. 1).....	141
Failure of paradoxon in the morning, appearance in the afternoon, in the same frog heart (Fig. 1).....	155
Contractions of the uterus of a white mouse (Fig. 2).....	157
Frog heart perfused with thymol, 1/200,000 (Fig. 2).....	182
Frog heart perfused with menthol, 1/20,000 (Fig. 1).....	182
Tracing showing the action of chloral, 1/2,000, both with and without camphor, 1/10,000 (Fig. 3).....	183
Rabbit heart perfused with camphor, 1/5,000 (Fig. 4).....	184
Rabbit heart perfused with thymol, 1/25,000 (Fig. 5).....	184
Tracing showing the action of camphor injected subcutaneously in a decerebrate cat (Fig. 6).....	187

Tracing showing the result of injecting camphor in solution in olive oil intravenously in the decerebrate cat (Fig. 7).....	188
Intra-hepatic administration of drugs (Fig. 1).....	227
Intra-hepatic administration of drugs (Fig. 2).....	227
Reaction to adrenalin (Fig. 1).....	232
Blood pressure tracing (Fig. 2).....	233
Showing retention of dye in three dogs given a single dose of carbon tetrachloride (4 cc./kilo) (Fig. 1).....	241
Showing no retention of dye in three dogs given a single dose of carbon tetrachloride (2 cc./kilo) (Fig. 2).....	243
Showing no retention of dye in three dogs given 4 cc./kilo of carbon tetrachloride, divided into two 2 cc./kilo doses administered forty-eight hours apart (Fig. 3).....	244
Liberation of salicyl from, or decomposition of, acetylsalicylic acid (0.1 per cent) in phosphate and citric-phosphate "buffer" solutions at 38°C. at the end of one hour, eighteen and twenty-four hours (Fig. 1).....	249
Shows the striking difference in the absorption of convulsant dyes into the intact and into the injured nervous system (Fig. 1).....	291
Shows the rate of excretion of arsenic in urine of dogs A and B (Graph 1).....	305
Shows the excretion of arsenic in the feces of dogs A and B (Graph 2).....	306
Shows the effect of successive doses of arsenic on the excretion (Graph 3).....	307
Shows the difference in the amount of arsenic in the feces of a dog with biliary fistula and a normal dog (Graph 4).....	308
Analyses of the urine, and the bile and urine of the dogs represented in graph 4 (Graph 5).....	309
Kidney: necrosis of epithelium of convoluted tubules (Fig. 1).....	316
Kidney: Necrosis of many convoluted tubules, and encrustation with calcium salts of necrotic portions (Fig. 2).....	318
Kidney: Necrosis and calcification of many convoluted tubules (Fig. 3).....	319
Kidney: Marked necrosis and calcification of convoluted tubules (Fig. 4).....	319
Massed temperature responses of 14 adult pigeons to doses of barbital varying from 100 to 343 mgm. per kilo of body weight (Chart 1).....	328
Daily body temperatures and body weights of pigeons in barbital narcosis compared with those of control pigeons (Chart 2).....	334
0.5 cc. epinephrin in normal subjects (Chart 1).....	346
0.5 cc. epinephrin on a diabetic patient, showing decrease of blood sugar (Chart 2).....	349
Epinephrin and insulin in a severe diabetic subject, complicated with pulmonary tuberculosis (Chart 3).....	352
Epinephrin and insulin in a diabetic patient (Chart 4).....	354
Comparison of the effect of 10 units of insulin on blood sugar in a diabetic patient three days after admission and after a period of clinical improvement (Chart 5).....	355
0.5 cc. epinephrin and 3½ units of insulin in a normal subject who is sensitive to epinephrin (Chart 6).....	357
0.5 cc. epinephrin and 3½ units of insulin in a normal subject who is relatively insensitive to epinephrin (Chart 7).....	358

Graphical picture of the increased percentage of total calories produced in 2 normal subjects by epinephrin and insulin, given alone and in combination (Chart 8).....	359
0.5 cc. epinephrin and 3½ units of insulin in a normal subject (Chart 9)....	360
0.5 cc. epinephrin and 3½ units of insulin in a normal subject (Chart 10) ..	361
0.5 cc. epinephrin and 10 units of insulin in a diabetic subject (Chart 11) ..	362
0.5 cc. epinephrin and 10 units of insulin in a diabetic subject (Chart 12) ..	363
Disappearance of hemoglobin from the blood stream in normal rabbits (Fig. 1).....	371
Rate of departure of hemoglobin from the blood stream in rabbits before and after ligation of the main liver (Fig. 2).....	372
Departure of hemoglobin from the blood stream before and after ligation of the main liver (Fig. 3).....	373
Phenoltetrachlorphthalein liver function test in normal rabbits and in those with the main liver ligated (Fig. 4).....	374
Abdominal window (Fig. 1).....	379
A composite curve taken from figure 1, Lamson and Roca, showing the hemoglobin concentration curve after the injection of 25 cc. of 0.8 per cent NaCl in exactly ten minutes (Fig. 1).....	403
From Lamson and Roca, showing the effect of the addition of 0.9 mgm. of epinephrine per kilo to the salt solution injected (Fig. 3).....	404
Curves showing the effect of the addition of 0.9 mgm. of epinephrine per kilo to the salt solution injected (20 per cent less than the standard amount to allow for the blood removed in shutting off the liver (Fig. 4).....	404
Curves 1, 2, 3 and 4 show the effect of the addition of 3.0, 0.1, 0.01, and 0.03 mgm. of histamine phosphate per kilo, respectively, to the salt solution injected (Fig. 5).....	406
Two curves showing the effect of 1.8 mgm. per kilo of histamine phosphate after removal of the liver (Fig. 6).....	407
Curves showing the effect of the addition of 0.7 cc. of a 1 per cent solution of barium chloride per kilo to the salt solution injected (Fig. 7).....	407
Curves showing the effect of 0.15 cc. per kilo of Armour's pituitary liquid to two dogs in the customary amount of salt solution (Fig. 8).....	407
Curves obtained after the injection of 2 cc. per kilo of Armour's pituitary liquid with the usual amount of salt solution (Fig. 9).....	408
Curves taken after injection of epinephrine (0.9 mgm. per kilo) and Armour's pituitary liquid (2 cc. per kilo) with the usual amount of salt solution (Fig. 10).....	408
Curves showing the effect of histamine phosphate, 1.8 mgm. per kilo, and Armour's pituitary liquid, 2 cc. per kilo, in the hemoglobin concentration curve when injected in the standard amount of salt solution (Fig. 11).....	409
Four curves of hemoglobin concentration after the injection of 2 cc. of Armour's pituitary liquid alone (Fig. 12).....	409
Curves 1, 2, and 3 are plotted from plasma protein concentrations after the injection of 2 cc. per kilo of Armour's pituitary liquid in 25 cc. of salt solution per kilo. Curves 4 and 5 show the changes in concentration of	

another substance, vital red injected twenty-four hours previously after the injection of pituitrin. Curve 6 is the plasma protein curve after the injection of saline alone. Curve 9 is the epinephrine and saline curve and curves 7 and 8 are histamine and saline curves (Fig. 13).....	410
Series of curves to compare a curve of volume change represented by plasma volume determinations done by the Keith, Rowntree and Geraghty method, and volume change as indicated by plotting hemoglobin concentration (Fig. 14).....	411
In this experiment 5 grams glucose per kilo were intravenously injected in a concentrated solution, and the volume curves plotted as before by the dye and hemoglobin methods (Fig. 15).....	411
Shows six curves all of which show a downward trend representing a decrease in blood volume (Fig. 16).....	411
These curves were obtained by the dye and hemoglobin methods after the addition of large amounts of Armour's pituitrin to the salt solution injected (Fig. 17).....	411
Portal and cava pressures after the injection of 2 cc. per kilo of Armour's pituitary liquid in 25 cc. of 0.8 per cent NaCl solution per kilo (Figs. 18 and 19).....	414
Portal and cava pressures with 5 drops spirits of nitroglycerin per kilo and 10 mgm. per kilo of sodium nitrite in 25 cc. of salt solution per kilo (Figs. 20 and 21).....	414
Curves showing the effect on venous pressure of 1.8 mgm. of histamine phosphate in 25 cc. of 0.8 per cent NaCl per kilo (Figs. 22 and 23).....	415
Venous pressures with 0.7, 1.0, 0.8 and 0.35 cc. of 2 per cent NBaCl_2 per kilo in curves 23, 27, 29 and 31 respectively in 25 cc. of 0.8 per cent NaCl per kilo (Figs. 24 and 25).....	415
Venous pressures with 0.9 mgm. of epinephrin per kilo and 2 cc. of Armour's pituitary liquid per kilo in 25 cc. of 0.8 per cent NaCl per kilo (Figs. 26 and 27).....	416
Venous pressure curve with a mixture of 1.8 mgm. of histamine phosphate and 2 cc. of Armour's pituitary liquid in 25 cc. of 0.8 per cent NaCl per kilo (Figs. 28 and 29).....	416
Curves showing the effect of shutting off the arterial blood supply to the liver, on the hemoglobin concentration curves after the injection of 25 cc. per kilo of 0.8 per cent NaCl with the addition of epinephrin 0.9 mgm. per kilo, curves 126, 129 and 137 histamine 1.8 mgm. per kilo, curves 131, 135, and saline alone in curves 139 and 141 (Fig. 30).....	422
Curve showing the portal pressure in 2 dogs after the injection of 0.9 mgm. of epinephrine per kilo after ligation of the hepatic artery (Fig. 31)....	423
Effect of the injection of adrenalin on the temperature of the brain and of the liver of animals which had received a previous dose of strychnine (Fig. 1).....	431
Effect of the injection of strychnin upon the temperature of the brain and of the liver (Fig. 2).....	434
Effect of the injection of adrenalin in a morphinized animal (Fig. 3).....	437
Effect of the injection of adrenalin upon the temperature of the brain and of the liver in an animal which had received preceding doses of atropin (Fig. 4).....	438

The effect of alcohol upon the temperature of the brain and of the liver, and of the injection of adrenalin in animals which had received preceding doses of alcohol (Fig. 5).....	440
The comparative effects of the injection of adrenalin upon the temperature of arterial (carotid) and venous (jugular) blood (Fig. 6).....	441
Uterus of a guinea-pig, stimulation with pituitary liquid and relaxation with benzyl mandelate (Fig. 1).....	445
Small intestine of rabbit, stimulation with pilocarpin hydrochloride, relaxation with benzyl mandelate (Fig. 2).....	446
Small intestine of rat, stimulation with pilo-carpin hydrochloride, relaxation with benzyl mandelate (Fig. 3).....	47
Muscle strip from human uterus, contracted by ergotoxin and relaxed by benzyl benzoate (Fig. 4).....	448
Muscle strip from human gall bladder, stimulation by morphine, marked contraction, relaxation by benzyl mandelate (Fig. 5).....	449
Blood pressure curve in the rabbit under paraldehyde anesthesia, showing the effect of benzyl mandelate injected intravenously (Fig. 6).....	450
Rabbit under paraldehyde anesthesia. Effect on respiration and blood pressure of benzyl mandelate introduced into the stomach (Fig. 7).....	451