

## CONTENTS

## NUMBER 1, SEPTEMBER, 1914

I. III. The Control of the Respiratory Exchange by Heating and Cooling the Temperature Centers. By Henry G. Barbour and Alexander L. Prince.....	1
II. The Action of Drugs on the Isolated Pulmonary Artery. By David I. Macht.....	13
III. The Influence of Temperature on the Action of Strophanthin on the Mammalian Heart. By John W. C. Gunn.....	39
IV. The Condition of the Sugar in the Blood. By C. L. v. Hess and Hugh McGuigan.....	45
V. A Note on the Pharmacological Action of Opium Alkaloids. By D. E. Jackson.....	57
VI. A Note on the Combined Action of Camphor and Lack of Oxygen upon the Isolated Mammalian Heart, with an Observation upon the Direct Action of Lack of Oxygen upon Blood Vessels. By A. N. Richards....	73
VII. On the Convulsant Action of Acid Fuchsin in Cardiotomized Frogs after Removal of the Anterior Lymph Hearts. By Don R. Joseph....	83
VIII. On the Influence of the Lymph Hearts upon the Action of Convulsant Drugs in Cardiotomized Frogs. II. By John J. Abel and B. B. Turner.....	91
IX. The Vascular Response of the Kidney in Acute Uranium Nephritis—the Influence of the Vascular Response on Diuresis. By William deB. MacNider.....	123

## NUMBER 2, NOVEMBER, 1914

X. The Action of Certain Esters and Ethers of Choline, and their Relation to Muscarine. By H. H. Dale.....	147
XI. Note on the Properties of Fungi Gathered in France. By William W. Ford and Nathaniel H. Brush.....	191
XII. Action of Amanita Phalloides and Other Amanitas upon the Frog's Heart. By William W. Ford and Nathaniel H. Brush.....	195
XIII. Further Observations on Fungi Including Species of Amanita, Inocybe, Volvaria, and Gyrophragmium. By William W. Ford.....	205
XIV. Contributions to the Physiology of the Stomach. XVI. The Action of the So-Called Stomachics or Bitters on the Hunger Mechanism. By A. J. Carlson, J. Van de Erve, J. H. Lewis and S. J. Orr.....	209
XV. Uric Acid Concentration of the Blood as Influenced by Atophan and Radium Emanation. By Morris S. Fine and Arthur F. Chace.....	219
XVI. The Physiological Action of the Oil and Seeds of Croton Elliotianus from British East Africa. By J. Theodore Cash and Walter J. Dilling.	235

## NUMBER 3, JANUARY, 1915

XVII. The Action of Strophanthin upon Suprarenal Secretion. By A. N. Richards and W. J. Wood.....	283
XVIII. The Action of Conessine and Holarrhenine, the Alkaloids of <i>Holarrena Congolensis</i> , and also of Oxyconessine. By J. H. Burn.....	305
XIX. Studies on the Vasomotor Centre. I. The Effects of the Nitrite Group. By J. D. Pilcher and Torald Sollmann .....	323
XX. Studies on the Vasomotor Centre. II. The Action of Strychnin. By J. D. Pilcher and Torald Sollmann.....	331
XXI. Studies on the Vasomotor Centre. III. The Action of Epinephrin. By J. D. Pilcher and Torald Sollmann.....	339
XXII. Studies on the Vasomotor Centre. IV. The Action of Camphor. By J. D. Pilcher and Torald Sollmann.....	345
XXIII. Studies on the Vasomotor Centre. V. The Action of Chloroform. By J. D. Pilcher and Torald Sollmann.....	349
XXIV. Studies on the Vasomotor Centre. VI. The Action of Cyanide. By J. D. Pilcher and Torald Sollmann.....	361
XXV. Studies on the Vasomotor Centre. VII. The Action of Aconite. By J. D. Pilcher and Torald Sollmann.....	365
XXVI. Studies on the Vasomotor Centre. VIII. The Action of Nicotin. By J. D. Pilcher and Torald Sollmann.....	369
XXVII. Studies on the Vasomotor Centre. IX. The Action of Spartein. By J. D. Pilcher and Torald Sollmann.....	373
XXVIII. Studies on the Vasomotor Centre. X. The Action of Phenol. By J. D. Pilcher and Torald Sollmann.....	377
XXIX. Studies on the Vasomotor Centre. XI. The Action of Cholin. By J. D. Pilcher and Torald Sollman.....	381
XXX. Studies on the Vasomotor Centre. XII. The Action of Ergot and Its Constituents, Ergotoxin, and Histamin. By J. D. Pilcher and Torald Sollmann.....	385
XXXI. Studies on the Vasomotor Centre. XIII. The Action of Hydrastis; Its Alkaloids, Hydrastin and Berberin; and the Derivatives Hydrastinin and Cotarnin. By J. D. Pilcher and Torald Sollmann.....	391
XXXII. Studies on the Vasomotor Centre. XIV. The Action of Digitalis and Strophanthus. By J. D. Pilcher and Torald Sollmann.....	395
XXXIII. Studies on the Vasomotor Centre. XV. The Action of Ether. By J. D. Pilcher and Torald Sollmann.....	401
XXXIV. Studies on the Vasomotor Centre. XVI. The Action of Pituitary Extract. By J. D. Pilcher and Torald Sollmann.....	405
XXXV. Studies on the Vasomotor Centre. XVII. The Action of Lactic Acid. By J. D. Pilcher and Torald Sollman.....	409

## NUMBER 4, MARCH, 1915

XXXVI. Note Concerning Helenin. By Paul Dudley Lamson.....	413
XXXVII. The Action of Certain Quarternary Ammonium Bases. By J. H. Burn and H. H. Dale.....	417

## CONTENTS

v

XXXVIII. Quantitative Observations on Antagonism. By Arthur R. Cushny.....	439
XXXIX. On the Pharmacology of the Respiratory Center. II. By Arthur R. Cushny and Charles C. Lieb.....	451
XL. The Effect of Homatropine on the Vagus. By Howell S. Zulick.....	473
XLI. Some Physiological Actions of the Homocholins and of Some of Their Derivatives. By Reid Hunt.....	477
XLII. The Influence of Drugs on the Human Sensory Threshold. By E. G. Martin, C. M. Grace, and J. H. McGuire.....	527

## NUMBER 5, MAY, 1915

XLIII. The Influence of Temperature and Concentration on the Quantitative Reaction of the Heart to Ouabain. By Torald Sollmann, W. L. Mendenhall and J. L. Stingel.....	533
XLIV. A Signal-Magnet Controller. By C. S. Chase and B. H. Schlomovitz.....	561
XLV. The Toxicity of Rattlesnake Serum and Bile with a Note on the Effect of Bile on the Toxicity of Venom. By William H. Welker and John Marshall.....	563
XLVI. Some Vasomotor Reactions of the Liver with Special Reference to the Presence of Vasomotor Nerves to the Portal Vein. By Charles W. Edmunds.....	569
XLVII. Demonstration by the Use of Arterial Rings of the Inhibitory Action of Certain Drugs on the Vaso-Constriction Produced by Epinephrin. By David I. Macht.....	591
XLVIII. Scientific Proceedings of the American Society for Pharmacology and Experimental Therapeutics. Edited by the Secretary.....	595

## ILLUSTRATIONS

Effects of heating and cooling corpus striatum upon rectal temperature (Fig. 1).....	4
— of cooling and heating corpus striatum (Fig. 2).....	5
— of heating corpus striatum for the first ninety minutes after puncture (Fig. 3).....	7
— of heating corpus striatum preceded and followed by control periods (Fig. 4).....	8
— of heating corpus striatum (Fig. 5).....	9
Heating and cooling when body temperature was influenced by outstretched posture (Fig. 6).....	11
Action of epinephrin on pig's pulmonary artery (Fig. 1).....	17
— of epinephrin on human pulmonary artery (Fig. 2).....	17
— of epinephrin in the human pulmonary artery, 49 days after death (Fig. 3).....	18
Human pulmonary artery (Fig. 4).....	20
Action of nicotine (0.01%) on pig's pulmonary artery (Fig. 5).....	21
— of digitoxin on pig's pulmonary artery (Fig. 6).....	22
Showing the relaxation produced by quinine (1.200) on pig's pulmonary (Fig. 7).....	22
Action of barium chloride on pig's pulmonary artery (Fig. 8). <i>See Errata</i> ...	23
— of sodium nitrite on the pig's pulmonary artery (Fig. 9). <i>See Errata</i> ...	24
— of nitroglycerine on pig's pulmonary artery (Fig. 10).....	25
— of erythrol tetranitrate on pig's pulmonary artery (Fig. 11).....	26
— of amyl nitrite on pig's pulmonary artery (Fig. 12).....	26
Showing the relaxation produced by sodium nitrite on the carotid artery (Fig. 13).....	27
— the relaxation produced by amyl nitrite on pig's carotid artery (Fig. 14)...	28
— relaxation of coronary of ox, produced by nitroglycerin (Fig. 15).....	28
— relaxation of coronary of ox, produced by amyl nitrite (Fig. 16).....	29
— action of yohimbrin hydrochloride on the coronary, the internal iliac, and the pulmonary arteries of the pig (Fig. 17).....	33
Perfusion of rabbit's heart with 1 in 500,000 strophanthin at 30°C. (Fig. 1)...	43
— of rabbit's heart with 1 in 500,000 strophanthin at 40°C. (Fig. 2).....	43
Dialyzing apparatus not requiring anticoagulants.....	49
Spinal dog (Fig. 1).....	61
Shows bronchial contraction produced by morphine acetate (Fig. 2).....	63
— the action of narcotine (Fig. 3).....	64
Heroin causes extreme broncho constriction (Fig. 4).....	67
Dionin causes marked broncho constriction (Fig. 5).....	68
Peronine produced profound bronchial contraction (Fig. 6).....	69
Action of camphor on isolated mammalian heart. Experiment 3 (Fig. 1).....	80
— of camphor on isolated mammalian heart. Experiment 5 (Fig. 2).....	81

Perfusion of dog's hind leg (Fig. 3).....	82
Showing the route taken by drugs or dyestuffs in passing from the anterior lymph hearts to the spinal cord and brain of cardiectomized frogs (Fig. 1).....	99
Lymph hearts on action of convulsant drugs (Fig. 2).....	103
Route taken by solutions of drugs and dyestuffs in their passage from the posterior lymph hearts of cardiectomized frogs to the calcareous saccules in the intervertebral foramina (Fig. 3).....	105
Tracing from the Mürthle manometer, carotid blood pressure, kidney volume, signal magnet and time marker (Tracing 1, Experiment 3, Table 1).....	129
The tracing is from the same animal as tracing 1 (Tracing 2).....	131
Tracing shows the renal vessels to be responsive to caffeine (Tracing 3, Experiment 1, Table 2).....	133
— shows that the renal vessels in the anuric animal are responsive to adrenalin (Tracing 4, Experiment 1, Table 2).....	135
— is from an animal that remained diuretic following morphine-ether as an anesthetic (Tracing 5, Experiment 1, Table 3).....	136
Following the decrease in kidney volume from adrenalin there is a transitory slacking in urine flow (Tracing 6, Experiment 1, Table 3).....	137
The figure shows the absence of acute swelling of the epithelium (Fig. 1, Experiment 3, Table 1).....	139
Kidney of an animal anuric following Gréchant's anesthetic (Fig. 2, Experiment 1, Table 2).....	140
— of an animal which remained diuretic following morphine-ether (Fig. 3).....	141
— of an animal nephritic from uranium nitrate (Fig. 4).....	142
Remaining kidney of the same animal after the animal had been subjected to Gréchant's anesthetic for one hour (Fig. 5).....	143
Cat: ether. Carotid blood-pressure (Fig. 1).....	150
— brain destroyed (Fig. 2).....	151
— ether. Plethysmograph records from intestine and limb (Fig. 3).....	152
Drop-record from perfused rabbit's ear; time signal (Fig. 4).....	153
Cat: brain destroyed. Artificial respiration (Fig. 5).....	154
— ether. Carotid blood-pressure (Fig. 6).....	155
— ether. Carotid blood-pressure (Fig. 7).....	156
— brain destroyed (Fig. 8).....	158
From same experiment (Fig. 9).....	159
Cat: brain destroyed (Fig. 10).....	161
Perfused heart of frog, recorded by suspension-lever (Fig. 11).....	163
Cat: ether. Contractions of small intestine (Fig. 12).....	166
Loop of rabbit's small intestine in 50 cc. Tyrode's solution (Fig. 13).....	167
Similar to Figure 13 (Fig. 14).....	168
Lower end of cat's oesophagus in 50 cc. Tyrode's solution (Fig. 15).....	170
Uterine horn of virgin rat in 50 cc. Tyrode's solution (Fig. 16).....	171
Cat: ether. Carotid blood-pressure (Fig. 17).....	181
Action of <i>Amanita phalloides</i> upon frog's heart in perfusion apparatus (Chart I).....	198
— of <i>Amanita spreata</i> , <i>Amanita junquillea</i> and <i>Amanita porphyria</i> (Chart II).....	198
— of <i>Amanita muscaria</i> (Chart III).....	198
— of <i>Amanita phalloides</i> upon frog's heart (Chart IV).....	200

Action of the ash of <i>Amanita muscaria</i> upon the frog's heart (Chart VI).....	200
— of solutions of the salts found in <i>Amanita phalloides</i> upon the frog's heart (Chart V).....	202
Record of the gastric hunger contractions of J. V. de E. (Fig. 1).....	212
— of the gastric hunger contraction J. H. L. (Fig. 2). <i>See Errata</i> .....	213
— of the end of a period of gastric hunger contractions of A. J. C. (Fig. 3) ..	214
Records of the gastric hunger contractions of dogs (Fig. 4).....	215
— of the gastric hunger contraction of dogs (Fig. 5.).....	216
Seeds of <i>Croton Elliotianus</i> enlarged (Fig. 1).....	236
Palatal haemorrhagic spots after <i>Croton Elliotianus</i> (Fig. 2).....	246
Haemorrhagic spots chiefly in both gastrocnemii and in left extensor cruris (Fig. 3).....	247
— spots in the oviducts after <i>Croton Elliotianus</i> (Fig. 4).....	248
Duodenum of frog (Fig. 5).....	249
Contractions of duodenum and colon after oil of <i>Croton Elliotianus</i> (Fig. 6) ..	261
Duodenum; upper colon; lower colon (Fig. 7).....	262
Duodenal record (Fig. 8).....	263
Duodenum; ileum (Fig. 9).....	265
Registering sound in duodenum (Fig. 10).....	266
Registration (duodenal) of active contractions (Fig. 11).....	268
Isolated strip of cat's longitudinal muscle contracting in blood drawn from inferior vena cava above entrance of suprarenal veins. Experiment 12 (Fig. 1.).....	289
Dog. Experiment 4A (Fig. 2).....	291
— Experiment 4B (Fig. 3).....	291
— Splanchnic nerves cut. Experiment 9 (Fig. 4).....	294
— Spinal cord cut between fourth and fifth cervical nerves. Experiment 11 (Fig. 5).....	295
Cat. Isolated strip of cat's longitudinal intestinal muscle contracting in arterial blood. Experiment 15 (Fig. 6).....	297
— 2000 grams. Ether (Fig. 1).....	310
— 2400 grams. Brain and spinal cord destroyed (Fig. 2).....	311
Conditions as in Figure 2 (Fig. 3).....	311
— as in Figure 2 (Fig. 4).....	312
Cat, 1700 grams. Ether (Fig. 5).....	313
Perfusion of rabbit heart with oxygenated Locke-Ringer solution (Fig. 6)....	314
— of rabbit heart with oxygenated Locke-Ringer solution (Fig. 7).....	315
— of frog heart with conessine (Fig. 8).....	316
Separate tracings from auricle and ventricle of frog heart seen in Fig. 8 (Fig. 9).....	317
Cat, 2000 grams. Ether (Fig. 10).....	319
Nitroglycerin on blood pressure and vasomotor centre (Fig. 1).....	325
Strychnin—nonconvulsive doses by the vasomotor centre (Fig. 1).....	332
Effect of convulsive doses of strychnin on the vasomotor centre (Fig. 2)....	334
Paralysis of vasomotor centre by strychnin (Fig. 3).....	337
Epinephrin on the vasomotor centre—continuous injection (Fig. 1).....	340
— on the vasomotor centre (Fig. 2).....	342
Convulsive doses of camphor on the vasomotor centre (Fig. 1).....	346
Depression of the vasomotor centre by chloroform (Fig. 1).....	352

Constrictor effect on the vasomotor centre of the administration of chloroform in high concentration (Fig. 2).....	354
Chloroform on the vasomotor centre when the tone had been increased by asphyxia (Fig. 3).....	356
The "Reversal" action (Bayliss) of chloroform on pressor stimuli (Fig. 4)....	358
Potassium cyanide on the vasomotor centre (Fig. 1).....	363
Aconite on the vasomotor centre (Fig. 1).....	366
Nicotin on the vasomotor centre (Fig. 1).....	371
Sparteïn on the vasomotor centre (Fig. 1).....	375
Phenol on the vasomotor centre (Fig. 1).....	379
Cholin on the vasomotor centre and the blood pressure (Fig. 1).....	382
Ergamin on vasomotor centre (Fig. 1).....	388
Hydrastis on vasomotor centre (Fig. 1).....	392
Fatal doses of strophanthus on blood pressure and vasomotor centre (Fig. 1) ..	398
Ether on the vasomotor centre and respiration (Fig. 1).....	403
Lactic acid on the vasomotor centre (Fig. 1).....	410
Cat. Ether. Artificial respiration (Fig. 1).....	420
— Ether (Fig. 2).....	421
Same as Figure 2 (Fig. 3).....	422
— experiment as Figure 1. Cat now pithed (Fig. 4).....	423
Completely pithed cat (Fig. 5).....	424
Continuation of Figure 5 (Fig. 6).....	425
Completely pithed cat (Fig. 7).....	426
Loop of rabbit's small intestine (Fig. 8).....	430
Horn of uterus of virgin guinea-pig (Fig. 9).....	431
Cat. Ether. Record of bladder-volume and carotid blood-pressure (Fig. 10).....	432
Pithed cat. Carotid blood-pressure (Fig. 11).....	434
Same as Figure 11. (Fig. 12).....	435
Pithed cat. Carotid blood-pressure (Fig. 13).....	436
Chart of the secretion of saliva from Series 1 (Fig. 1).....	443
— of the secretion of saliva under atropine and pilocarpine from Series 5 (Fig. 2).....	449
Respiration in rabbit during the inhalation of 7 per cent CO <sub>2</sub> (Fig. 1).....	453
— in rabbit during the inhalation of a mixture of air and nitrogen (Fig. 2) ..	462
Effect of temperature on M. S. D. of ouabain (Curve 1).....	535
Magnified average curve of M. S. D. of ouabain (Curve 2).....	536
Influence of temperature at different concentrations (Fig. 3).....	542
— of concentration at different temperatures (Fig. 4).....	551
Signal-magnet controller. Side-view (Fig. 1).....	562
— controller. Lower surface view (Fig. 2).....	562
Metal hood adjustment for all glass syringe (Fig. 3).....	562
Dog. Blood pressure (B. P.) and liver volume tracing (L. V.) (Fig. 1).....	575
— Blood pressure (B. P.) (Fig. 2).....	576
— Blood pressure (B. P.) (Fig. 3).....	578
— Liver volume (L. V.) (Fig. 4).....	581
— Inferior vena cava (C.) pressure (Fig. 5).....	582
— Portal pressure (Fig. 6).....	589
Action of epinephrin on pig's pulmonary artery (Fig. 1).....	592
Pig's carotid (Fig. 2).....	593