

CONTENTS

NUMBER 1, JANUARY, 1938

I. The Effect of Digitalis on the Anesthetized Dog. I. Action on the Splanchnic Bed. L. N. Katz, S. Rodbard, M. Friend and W. Rottersman.....	1
II. Some Undescribed Pharmacological Properties of Bulbocapnin. Hans Molitor.....	16
III. The Influence of Theophylline Upon the Absorption of Mercuripurin and Salyrgan from the Site of Intramuscular Injection. Arthur C. DeGraff, Roberts C. Batterman, and Robert A. Lehman.....	26
IV. Arterenol as a Possible Sympathetic Hormone. Z. M. Bacq....	37
V. The Fate of Drugs Used in Spinal Anaesthesia. Kenneth Bullock and A. D. MacDonald.....	39
VI. Gastrointestinal Administration of Sobisminol: Absorption, Distribution and Excretion of Bismuth. P. J. Hanzlik, A. J. Lehman, A. P. Richardson and W. Van Winkle, Jr.....	54
VII. The Local Anesthetic Actions of Two Esters of Mono Alkylated Amino Alcohols. David I. Abramson and Samuel D. Goldberg.....	69
VIII. Studies on the Mechanism of Morphine Hyperglycemia. The Rôle of the Sympathetic Nervous System with Special Reference to the Sympathetic Supply to the Liver. R. C. Bodo, F. W. Tui and A. E. Benaglia.....	88
IX. Studies of Chronic Morphine Poisoning in Dogs. VII. Effect of Thyroid Feeding on the Excretion of Morphine in Tolerant and Non-Tolerant Dogs. O. H. Plant and D. Slaughter.....	106
X. The Effect of Benzedrine Sulfate on the Emptying Time of the Human Stomach. Edward J. Van Liere and Clark K. Sleeth..	111
XI. The Influence of Digitalis Glucosides on the Force of Contraction of Mammalian Cardiac Muscle. McKeen Cattell and Harry Gold.....	116

NUMBER 2, FEBRUARY, 1938

XII. The Identification of the Active Crystalline Substance from Liver Which Protects Against Liver Damage Due to Chloroform or Carbon Tetrachloride; and a Study of Related Compounds. R. C. Neale and H. C. Winter.....	127
XIII. The Pharmacological Action of Deuterium Oxide. III. Its Protective Effect on Acetyl Choline and Epinephrine. Sinisha B. Bogdanovitch and Henry G. Barbour.....	149

XIV. The Pharmacological Action of Deuterium Oxide. IV. The Sympathomimetic Action of Deuterium Oxide in Mice. Henry G. Barbour and Julian B. Herrmann.....	158
XV. Some Tetrahydroisoquinolines. I. Their Relative Toxicology and Symptomatology. Axel M. Hjort, Edwin J. deBeer and David W. Fassett.....	165
XVI. Autonomic Drugs and the Biliary System. I. The Action of Acetyl-B-Methyl Choline Chloride (Mecholyl) and Benzyl Methyl Carbinamine Sulphate (Benzedrine Sulphate) on the Gall Bladder. James Flexner, Maurice Brugger and Irving S. Wright.....	174
XVII. Studies of Cyclopropane. IV. Cardiac Output in dogs Under Cyclopropane Anesthesia. Benjamin H. Robbins and James H. Baxter, Jr.....	179
XVIII. Nor-Epinephrine [β -(3,4-Dihydroxyphenyl)- β -Hydroxyethylamine] as a Possible Mediator in the Sympathetic Division of the Autonomic Nervous System. C. M. Greer, J. O. Pinkston, J. H. Baxter, Jr. and E. S. Brannon.....	189
XIX. Microscopic Observations of Pulmonary Artery Reactions. Albert J. Gilbert.....	228
XX. Reactions of Carotid Arteries of Small Animals. Torald Sollmann and A. J. Gilbert.....	236
XXI. The Relative Activity of Various Purified Products Obtained from American Grown Hashish. R. P. Walton, L. F. Martin and J. H. Keller.....	239
XXII. The Toxicity and Anesthetic Potency of Some New Benzoyl Derivatives. R. F. Silvers and A. R. McIntyre.....	252
NUMBER 3, MARCH, 1938	
XXIII. The Assay of Gonad Stimulating Preparations. M. C. D'Amour and F. E. D'Amour.....	263
XXIV. Nembutal Anesthesia. III. The Median Lethal Dose of Nembutal (Pentobarbital Sodium) for Young and Old Rats. Emmett B. Carmichael.....	284
XXV. The Pharmacological Action of Deuterium Oxide. V. A Calorigenic Saturation Level and the Influence of Ergotoxine. Henry G. Barbour and Lillie E. Rice.....	292
XXVI. Nature of Acquired Tolerance to Alcohol. Henry W. Newman and Arnold J. Lehman.....	301
XXVII. The Rat in the Assay of Cortin. Fred E. D'Amour and Dorothy Funk.....	307
XXVIII. Analysis of the Circulatory Actions of Ethylnorsuprarenin. W. M. Cameron, J. M. Crismon, L. J. Whitsell, and M. L. Tainter..	318
XXIX. The Action of Merthiolate on the Gonadotropic Effect of Anterior Pituitary Extract. Graham Chen and H. B. van Dyke....	333
XXX. Tolerance and Fate of the Pressor Principle of Posterior Pituitary Extract in Anesthetized Animals. Edward Larson.....	346

XXXI. The Pharmacological Action of Deuterium Oxide. VI. Its Influence upon the Insensible Water Loss. Henry G. Barbour and Lillie E. Rice.....	363
XXXII. Sobisminol: Toxicity, Tolerance and Irritation According to Different Channels of Administration. P. J. Hanzlik, A. J. Lehman and A. P. Richardson.....	372
XXXIII. Continued Voluntary Drinking of Sobisminol: General Effects. P. J. Hanzlik and A. J. Lehman.....	389
XXXIV. Excretion of Bismuth After Intramuscular Injection of Sobisminol: Experimental and Clinical Results. P. J. Hanzlik, A. J. Lehman and A. P. Richardson.....	404
XXXV. Intramuscular Injection of Sobisminol: Absorption and Distribution of Bismuth. P. J. Hanzlik, A. J. Lehman and A. P. Richardson.....	413
XXXVI. Effects of Prostigmin and Atropine on the Human Stomach. H. O. Veach, B. R. Lauer, and A. G. James.....	422
XXXVII. A Basis for The Acetylcholine Action of Choline Derivatives. R. R. Renshaw, D. Green and M. Ziff.....	430
XXXVIII. The Action of Acetyl-Beta-Methylcholine Chloride (Mecholyl) in Neurogenic Disturbances of The Urinary Bladder, With a Note On the Mechanism of Spinal Shock. Paul M. Levin..	449
XXXIX. The Influence of Ouabain on The Contraction of Striated Muscle. McKeen Cattell.....	459
XL. The Relation of Acetanilid And other Drugs To Analgesia in Monkeys. Paul K. Smith.....	467
XLI. Index.....	475

ILLUSTRATIONS

Graph of changes observed following intravenous injection of digitalis in divided doses in anesthetized dog with liver in circuit, and arterial pressure level high (fig. 1).....	7
— of changes observed following continuous intravenous injection of digitalis in anesthetized dog with liver in circuit and arterial pressure high (fig. 2).....	7
— of changes observed following continuous intravenous injection of digitalis in anesthetized dog with liver in circuit and arterial pressure low (fig. 3).....	8
— of changes observed following continuous intravenous injection of digitalis in anesthetized dog with liver out of circuit and arterial pressure high (fig. 4).....	9
— of changes observed following continuous intravenous injection of digitalis in anesthetized dog with liver out of circuit and arterial pressure low (fig. 5).....	9
Photograph of flowmeter (fig. 6).....	12
Effect of bulbocapnin on skin temperature, blood circulation in ear, and leg volume (fig. 1).....	17
— of bulbocapnin on blood pressure, kidney volume and leg volume (fig. 2).....	18
— of bulbocapnin on blood pressure and leg volume when injected in arteria carotis interna and arteria mesenteric inferior (fig. 3).....	19
— of adrenalin on kidney volume and leg volume before and after bulbocapnin (fig. 4).....	20
— of adrenalin on cat's blood pressure before and after bulbocapnin (fig. 5).....	21
— of bulbocapnin and papaverin on isolated rabbit's intestine (fig. 6)....	23
— of bulbocapnin on vascular reflexes in ear of nonanesthetized rabbit (fig. 7).....	23
Curves showing mean percentage absorption of mercupurin and of mercupurin without theophylline at various time intervals after intramuscular injection (fig. 1).....	32
— showing mean percentage absorption of salyrgan with theophylline and of salyrgan at various time intervals after intramuscular injection (fig. 2).....	33
Procaine concentrations in cerebro-spinal fluid following spinal injection of procaine HCl (fig. 1).....	46
Larocaine concentrations in cerebral-spinal fluid (fig. 2).....	47
Tutocaine concentrations in cerebro-spinal fluid (fig. 3).....	48
Absorption of sobisminol from loops of ligated intestines (fig. 1).....	57
Effect of benzedrine sulfate on stomach (fig. 1).....	113
Action of ouabain in various concentrations on systolic tension of isolated papillary muscles (fig. 1).....	120

Influence of digitalis on cardiac muscle (fig. 2).....	120
Augmentation of systolic tension produced by solution of digitoxin (fig. 3) ..	122
Section from liver of control rat subjected to chloroform anesthesia (fig. 1) ..	136
— from liver of rat from same experiment but which received sodium xanthine prior to anesthesia (fig. 2)	136
— from liver of control rat receiving carbon tetrachloride anesthesia (fig. 3)	136
— from liver of rat receiving carbon tetrachloride anesthesia but which was protected with sodium xanthine (fig. 4)	136
— from liver of rat subjected to carbon tetrachloride anesthesia (fig. 5) ..	139
— from liver of rat from same experiment which received guanine prior to carbon tetrachloride anesthesia (fig. 6)	139
— from liver of rat receiving same anesthesia as those represented by figures 6 and 7, but which received one protective dose of guanosine before anesthesia (fig. 7)	139
— from liver of rat subjected to carbon tetrachloride anesthesia and killed later (fig. 8)	142
— from liver of rat subjected to same anesthesia as control rat in figure 8, but which received hypoxanthine before anesthesia was administered (fig. 9)	142
— from liver of rat from same experiment as those represented in figures 8 and 9, but which received two protective doses of uracil prior to anesthesia (fig. 10)	142
Potentiation of acetyl choline by heavy water (fig. 1)	150
Reinforcement and persistence of acetyl choline action in 20 per cent D ₂ O balance solution (fig. 2)	151
Effects of exposing acetyl choline solutions to fundulus scales for various lengths of time (fig. 3)	153
Protective action of heavy water upon weak epinephrine solutions exposed to scales; persistence of scale-treated epinephrine after evaporation of "protective" heavy water (fig. 4)	154
Two mice about one-fifth saturated with deuterium oxide (fig. 1)	160
Mouse about one-fifth saturated with deuterium oxide showing exophthalmos and general pilomotor stimulation in profile (fig. 2)	160
Same mouse about one hour later, after receiving ergotoxine (fig. 3)	162
Effect of acetyl-B-methyl choline chloride (mercholy) and of benzyl methyl Carbinamine sulphate (benzedrine sulphate) on gall bladder (fig. 1)	176
— of acetyl-B-methyl choline chloride (mecholy) and of benzyl methyl carbinamine sulphate (benzedrine sulphate) on gall bladder (fig. 2)	177
Records of arterial pressure from three experiments in which response to l-epinephrine and dl-nor-epinephrine was compared with that to hepatic nerve stimulation (fig. 1)	199
Pressor responses to l-epinephrine, dl-nor-epinephrine, and hepatic nerve stimulation before and after ergotoxine (fig. 2A)	202
Same as figure 2A (fig. 2B)	203
Records of blood pressure and iris with l-epinephrine, dl-nor-epinephrine, dl-arterenol, and hepatic nerve stimulation (fig. 3)	204

Records of blood pressure, iris and non-pregnant uterus with l-epinephrine, dl-nor-epinephrine, and hepatic nerve stimulation (fig. 4).....	205
— of blood pressure and nictitating membrane with l-epinephrine, dl-nor-epinephrine, and hepatic nerve stimulation (fig. 5).....	207
— of blood pressure and nictitating membrane with l-epinephrine, dl-nor-epinephrine, and hepatic nerve stimulation (fig. 6).....	208
— from three experiments showing responses of uterus, nictitating membrane and blood pressure to l-epinephrine and dl-nor-epinephrine (fig. 7) .	210
Non-pregnant uterus of rat in Locke's solution (fig. 8).....	211
Records of duodenum and blood pressure with l-epinephrine, dl-nor-epinephrine, and hepatic nerve stimulation (fig. 9).....	214
Responses of duodenum and blood pressure to hepatic nerve stimulation in two cats under dial anesthesia (fig. 10).....	215
Rabbit duodenum in Locke's solution; duodenum of kitten (fig. 11).....	215
Photomicrographs of pulmonary artery reactions (figs. 1 and 2).....	230
— of pulmonary artery reactions (fig. 3).....	232
— of pulmonary artery reactions (figs. 4 and 5).....	233
Fresh carotid of cat (fig. 1).....	236
Carotid from same cat (fig. 2).....	237
Same artery as in figure 2 (fig. 3).....	237
Activity of cannabis preparations (figs. 1 and 2).....	242
— of cannabis preparations (figs. 3 and 4).....	247
Assay of gonad stimulating preparations (fig. 1).....	266
— of gonad stimulating preparations (fig. 2).....	268
— of gonad stimulating preparations (fig. 3).....	269
— of gonad stimulating preparations (fig. 4).....	271
— of gonad stimulating preparations (fig. 5).....	272
— of gonad stimulating preparations (fig. 6).....	274
— of gonad stimulating preparations (fig. 7).....	275
Median lethal dose of nembutal for young and old rats (fig. 1).....	289
Calorigenic effect of 40 per cent D ₂ O (fig. 1).....	293
— effect of 100 per cent D ₂ O (fig. 2).....	294
Relation of metabolism to specific gravity of insensibly lost water (fig. 3)....	295
Plateau of metabolism increased under deuterium oxide interrupted by addition of ergotoxine ethanesulfonate to morning dose of deuterium oxide (fig. 4).....	297
Same as figures 1 and 2 but showing effects of thyroidectomy after interval of 65 days (fig. 5).....	299
Relationship of blood alcohol concentration to degree of drunkenness in abstinent and habituated dogs (fig. 1).....	303
Alcohol concentration of blood and brain after intravenous injection in rats (fig. 2).....	305
Rat in assay of cortin (graph 1).....	312
Relative constrictor potency of ethylnorsuprarenin and epinephrine for perfused cat's leg (fig. 1).....	322
Cardiac stimulation in heart-lung preparation by equivalent doses of ethylnorsuprarenin and epinephrine (fig. 2).....	324

Constriction of excised hepatic veins by ethylnorsuprarenin and epinephrine and relaxation by nitroglycerine (fig. 3).....	325
Changes in venous and arterial pressures, intestinal, leg and liver volumes in cat receiving ethylnorsuprarenin intravenously (fig. 4).....	326
— in arterial and portal pressures and leg volume from ethylnorsuprarenin intravenously in cat (fig. 5).....	327
— in arterial pressure, leg volume, heart volume and pulse rate in cat receiving ethylnorsuprarenin intravenously (fig. 6).....	328
— in leg volume and blood pressure, showing dilatation, then constriction of leg after ethylnorsuprarenin in comparison with responses to nitroglycerine and epinephrine (fig. 7).....	329
Action of merthiolate on gonadotropic effect of anterior pituitary extract (figs. 1 and 2).....	334
Changes in microscopic appearance of ovaries of rats following administration of pituitary gonadotropic extract with or without merthiolate (fig. 3).....	339
— in microscopic appearance of uteri and vaginae of rats following administration of pituitary gonadotropic extract with or without merthiolate (fig. 4).....	340
— in microscopic appearance of epithelium of seminal vesicles of rats following administration of pituitary gonadotropic extract with or without merthiolate (fig. 5).....	342
Composite diagram of blood pressure, spleen volume and volume of about one-third of small intestine of cat (barbital and ether anesthesia) receiving series of intravenous injections of pituitary extract (fig. 1)....	350
Tolerance of anesthetized dogs and cats for pituitary extract (figs. 2 to 5) ..	353
Amounts of urine and posterior pituitary eliminated by anesthetized cats and dogs receiving pituitary extract intravenously (fig. 6).....	355
Tolerance of anesthetized dogs and cats for pituitary extract (figs. 7 to 10) ..	358
Relation of insensibly lost water to CO ₂ output (fig. 1).....	365
— between water lost insensibly and CO ₂ output during administration of deuterium oxide (fig. 2).....	367
Effects of D ₂ O followed by withdrawal and recovery (fig. 3).....	367
Changes in metabolism and water loss following ergotoxine given on sixth day of deuterium oxide treatment (fig. 4).....	369
Temperatures of mice becoming gradually saturated by various courses of deuterium oxide (fig. 5).....	370
Continued drinking of water (control) and of diluted solvent in sobisminol by white rats (fig. 1).....	391
— drinking of different dilutions of sobisminol by white rats (fig. 2)....	392
— drinking of solvent and different dilutions of sobisminol by rabbits (fig. 3).....	393
Bismuth-balance chart after intramuscular injection of therapeutic doses of sobisminol in patients and rabbits (fig. 1).....	408
Clinical urinary excretion of bismuth after intramuscular injection of sobisminol (fig. 2).....	409
Effects of prostigmin and atropine on human stomach (fig. 1).....	424
— of prostigmin and atropine on human stomach (fig. 2).....	425

Effects of prostigmin and atropine on human stomach (figs. 3 and 4)	426
Blood pressure curve of choline derivative on infusion (fig. 1)	433
Measurement of evanescence in absence of nicotine action, measurement of evanescence in presence of nicotine action (figs. 2a and 2b)	433
Nicotine action of ethoxycholine (fig. 3)	436
Similarity of effect of eserine on activity of ethoxycholine and acetylcholine (fig. 4)	440
Showing presence of blood-labile substance in heart blood of cat receiving ethoxycholine (fig. 5)	443
Effect of mecholyl on bladder of normal cat; nembutal anesthesia (fig. 1) . . .	450
— of mecholyl on bladder of cat seven days after section of posterior sacral roots; nembutal anesthesia (fig. 2)	452
— of mecholyl on bladder of cat two days after section of all sacral roots; nembutal anesthesia (fig. 3)	453
— of mecholyl on bladder of cat after transection of spinal cord at upper thoracic level; cat not anesthetized (fig. 4)	456
Changes in twitch tension and efficiency following exposure to ouabain, and their reversal in Ringer's solution (fig. 1)	462
— in twitch tension following exposure to ouabain, with reversal following reimmersion in original ouabain solution (fig. 2)	463
Monkeys in position for mechanical and electrical stimulation and recording of respiration (fig. 1)	470
Some effects in monkeys of acetanilid, caffeine and morphine (fig. 2)	472