CONTENTS

NUMBER 1, NOVEMBER, 1926

I. On the Influence of Asphyxia upon the Action of Convulsant Dyes and upon Their Entrance Into the Substance of the Central Nervous System. By Hans C. Syz .................................................. 1
II. Effects of Ephedrine on the Perfused Frog Heart and Blood Vessels. By O. W. Barlow and Torald Sollmann .............................. 21
III. Studies on Strychnin. By Grace Newman .................................. 31
IV. The Action of Bismuth on the Circulatory System. By George A. Masson .......................................................... 39
V. One of the Factors Governing the Relaxation of Non-striated Muscle (Intestine) by Commercial Pituitary Extracts. By Charles M. Gruber 73
VI. The Influence of Hydrazine and Its Derivatives on Metabolism. I. The Effect of Substitution in the Hydrazine Molecule upon the Hypoglycemic Action of Hydrazine. By Seiichi Izume and Howard B. Lewis .... 87
VII. A Note on the Lack of Anaphylactoid Changes in the Lungs of Guinea Pigs After the Intravenous Administration of Mercurochrome-220 Soluble. By J. E. Sanner and J. H. Hill ................................. 95

NUMBER 2, DECEMBER, 1926

VIII. Studies in Chemotherapy. By Myer Coplans and Arthur G. Green.. 101
IX. The Toxicity of Bismuth. By George A. Masson ..................... 121
X. The Influence of Barbituric Acid, of Some Benzyl Derivatives and of the pH of Fluids on the Tonus and Rhythmic Movements of Excised Segments of Intestine, Uterus and Ureters. By Charles M. Gruber .... 149
XI. The Actions of Tyramine on the Circulation and Smooth Muscle. By M. L. Tainter .............................................................. 163

NUMBER 3, JANUARY, 1927

XIII. The Antagonism of the Pressor Action of Tyramine by Cocaine. By M. L. Tainter and D. K. Chang ............................................ 193
XIV. Ephedrine Hyperglycemia in Dogs and Rabbits. By J. Allen Wilson 209
XV. Studies on the Cardiodynamic Actions of Drugs. I. The Application of Optical Methods of Pressure Registration in the Study of Cardiac Stimulants and Depressants. By Carl J. Wiggers ......................... 217
XVI. Studies on the Cardiodynamic Actions of Drugs. II. The Mechanism of Cardiac Stimulation by Epinephrin. By Carl J. Wiggers ........ 233

iii
CONTENTS

XVII. Studies on the Cardiodynamic Actions of Drugs. III. The Mechanism of Cardiac Stimulation by Digitalis and g-Strophanthin. By Carl J. Wiggers and Barbara Stimson ........................................... 251
XVIII. Note About Physostigmin. By Wolfgang Heubner .................. 271
XIX. Note Regarding the Formation of Methemoglobin. By Wolfgang Heubner ................................................................. 273

NUMBER 4, FEBRUARY, 1927

XXI. On the Standardisation of Digitalis by the Cat Unit Method. By A. McFarlane and G. A. Masson ........................................... 293
XXII. Ethylene Glycol—a Pharmacological Study. By Irvine H. Page .... 313
XXIII. Some Experimental Observations on the Cardiac Effects of Ace- tanilid, Caffeine and its Citrate. By George B. Roth......................... 321
XXIV. II. Studies on Quinin. By Soma Weiss and Robert A. Hatcher .......... 327
XXV. III. Studies on Quinidin. By Soma Weiss and Robert A. Hatcher .... 335
XXVI. IV. Studies on Quinin. By Robert A. Hatcher and Harry Gold ........ 347

NUMBER 5, MARCH, 1927

XXVII. The Effect of Atropine on the Gastro-Intestinal Hemorrhage Produced by Witte's Peptone. By Erwin G. Gross ...................... 351
XXVIII. A Study of Santonin Xanthopsia. By Wilfrid Marshall ............. 361
XXIX. Santonin Excretion and its Relation to Santonin Xanthopsia. By Wilfrid Marshall ......................................................... 389

NUMBER 6, APRIL, 1927

XXXI. The Toxic Action of Acetaldehyde on the Organs of Vertebrata. By J. V. Supniewski .................. 429
XXXII. The Pharmacological Properties of Di-Meta-Amino-Benzoyl Rivanaol. By J. V. Supniewski ............................................. 439
XXXIII. Achlorhydria. A Consideration of the Benefits from Treatment with Hydrochloric Acid and Pepsin. By Herbert V. Dobson .......... 447
XXXIV. A Quantitative Comparison and Toxicological Study of Ephedrine and Epinephrin. By J. Ernest Nadler ............................... 489
ILLUSTRATIONS

Chart representing for each concentration studied the cardiac changes of amplitude in millimeters, rate changes in beats per minute and output in per cent per minute change as well as changes in percentile rate flow through the frog vessels (Fig. 1) ........................................... 23

Diagram representing the typical cardiac response to ephedrine 1:10⁴ when perfused into the vena cava (Fig. 2a) ........................................... 25
— showing the recovery from the ephedrine irregularities on changing from ephedrine to a normal perfusate (Fig. 2b) .......................... 25
— illustrating the cardiac stimulation frequently observed with dilute concentration of ephedrine (Fig. 3a) ............................ 26
— showing the response of the heart in figure 3a to the same concentration of ephedrine during electrical stimulation of the accelerator nerve (Fig. 3b) .............................. 28

Auricle (upper) and ventricle (lower) from a cat in an advanced stage of bismuth poisoning (Fig. 1) ........................................... 44

Tracing from a cat's heart after 3.56 mgm. bismuth metal per kilogram intravenously (Fig. 2) ........................................... 45

Myocardiographs from the auricle (upper) and ventricle (lower), of a dog after 3.1 mgm. bismuth metal per kilogram intravenously in two doses (Fig. 3) ........................................... 46

Apparatus for detecting the excitability of the heart muscle after small doses of bismuth (Fig. 4) ........................................... 50

Record of an experiment on a cat to test the excitability of the heart muscle after small doses of bismuth (Fig. 5) ........................................... 51

Electrocardiograms (lead 2) from a dog before and at one minute's intervals after 1.08 mgm. bismuth metal per kilogram (Fig. 6) ........................................... 54

Tracings from auricle (upper), ventricle (lower) and blood pressure from a cat 30 seconds after 3.2 mgm. bismuth metal have been injected quickly into a vein (Fig. 7) ........................................... 59

Relaxation of non-striated muscle (Figs. 1 and 2) ........................................... 77
— of non-striated muscle (Fig. 3) ........................................... 78
— of non-striated muscle (Fig. 4) ........................................... 79
— of non-striated muscle (Fig. 5) ........................................... 80
— of non-striated muscle (Fig. 6) ........................................... 81
— of non-striated muscle (Fig. 7) ........................................... 82

Fig 1. Ether anesthesia only; lungs normal (Fig. 1) ........................................... 97
— 15. Acute anaphylactic shock (Fig. 2) ........................................... 97
— 5. Five milligrams per kilogram mercuriochrome intravenously; lungs normal (Fig. 3) ........................................... 98

Blood pressure tracing from the carotid artery of a cat (Fig. 1) ........................................... 142

Excised longitudinal segments of rabbit's intestine bathed in oxygenated, Tyrode's solution pH 7.6 at a temperature of 37.5°C. (Fig. 1) ........................................... 151
ILLUSTRATIONS

Segments taken from another animal (Fig. 2) ........................................ 152
Excised cat uterus, bathed in warm 37.5°C. oxygenated Locke’s solution pH
7.6 to 7.8 (Fig. 3) ............................................................................. 154
— segments of dogs uterus bathed in warm 37.5°C. oxygenated Locke’s
solution pH 7.4 modified by the addition of autogenous defibrinated
blood (Fig. 4) .................................................................................. 155
— longitudinal strips of pigs’ ureters, bathed in warm 37.5°C. Locke’s Solu-
tion pH 7.6 to 7.8 (Fig. 5) ................................................................. 156
— longitudinal segments of pigs’ ureters bathed in warm 37.5°C. Locke’s
solution pH 7.6 to 7.8 (Fig. 6) ............................................................. 157
Same as figure 6, except that the segments were taken from another animal
(Fig. 7) ............................................................................................ 158
Excised longitudinal segments of a cat’s uterus bathed in oxygenated Ringer’s
solution pH 7.8 to 8.0 at a temperature of 38.5°C. (Fig. 8) ................. 160
Failure of nicotine tartrate to prevent the pressor action of tyramine. Cat
3.5 kgm. (Fig. 1) .............................................................................. 167
Reversal of the blood pressure action of tyramine during paralysis of the
sympathetic vasoconstrictions by ergot. Cat 2.1 kgm. (Fig. 2) ............. 168
Pressor action of tyramine produced during paralysis of the sympathetic
vasoconstrictors by ergotoxine. Dog 6.3 kgm. (Fig. 3) ....................... 169
Stimulation of excised rabbit duodenum (longitudinal strip) by tyramine
(Fig. 4) .............................................................................................. 175
— of excised rabbit colon by tyramine during paralysis of parasympathetic
endings (Fig. 5) .............................................................................. 176
— of excised, ergotoxized, pregnant, rabbit uterus by tyramine (during
paralysis of sympathetic augmentors) (Fig. 6) .................................. 179
Two-hour film of tolysin cholecystogram (Fig. 1) ................................. 187
Six-hour film from same patient (Fig. 2) .............................................. 188
Two-hour film of tolysin cholecystogram (Fig. 3) ................................. 189
Six-hour film from same patient (Fig. 4) .............................................. 190
Pressor action of tyramine abolished, and of epinephrine increased, by co-
caine in a rabbit (2.18 kgm.) (Fig. 1) .............................................. 194
— action of tyramine abolished, and of epinephrine increased, by cocaine
in a cat (2.65 kgm.) (Fig. 2) ............................................................. 194
Antagonistic action of cocaine on the changes in blood pressure, heart and
peripheral organ volume caused by tyramine contrasted with its sen-
sitizing action on the effects of epinephrine in a cat (1.9 kgm.) (Fig. 3) 199
— action of cocaine on the changes in blood pressure, heart and peripheral
organ volume caused by tyramine contrasted with its sensitizing action
on the effects of epinephrine in a dog (6.3 kgm.) (Fig. 4) ................. 199
Ephedrine hyperglycemia in dogs and rabbits (Fig. 1) ......................... 211
— hyperglycemia in dogs and rabbits (Fig. 2) ..................................... 212
Four transcribed left intraventricular pressure curves showing the effects of a
slight aortic compression (Fig. 1) .................................................. 220
Three transcribed curves of left intraventricular pressure to illustrate the
influence of changes in venous pressure, relaxation gradient and duration
of systole on the duration of the inflow phase (Fig. 2) ...................... 221
ILLUSTRATIONS

Simultaneous aortic (upper) and left intraventricular pressure curves showing three successive beats of different vigor (Fig. 3) 225
Cardiodynamic actions of drugs (Fig. 4) 227
actions of drugs (Fig. 5) 227
Three segments of records from experiment C361, showing the influence of epinephrin on the pressure curves from the aorta (upper) and the left ventricle (middle), together with electrogram from the apex of the left ventricle (Fig. 1) 233
Segments of optically recorded records from experiment C373, separating the primary and secondary effects of epinephrin on the heart (Fig. 2) 236
Two series of superimposed tracings showing effect of epinephrin on right (lower), and left (upper) intraventricular pressures (Fig. 3) 238
Two records of right (lower) and left (upper) intraventricular pressures from experiment C348, showing, especially, opposite effects on initial tension when aortic pressure is allowed to rise (Fig. 4) 241
Diagram of heart upon which are located points of lead in these experiments (Fig. 5) 245
Five segments of records showing volume curves of ventricles (V) and mean blood pressure (B. P.) (Fig. 1) 233
Four segments of records of aortic pressure (upper curve) and left ventricular pressure (middle) from experiment 356 (Fig. 2) 257
— superimposed and transcribed curves of left ventricular pressure from experiment 358 (Fig. 3) 262
— superimposed and transcribed curves of left ventricular pressure from experiment 373, showing relations of relaxation gradient to initial pressure and effect of controlling arterial resistance (Fig. 4) 263
Pharmacology of ceanothus americanus (Tracing 1) 276
— of ceanothus americanus (Tracing 2) 277
— of ceanothus americanus (Tracing 3) 277
— of ceanothus americanus (Tracing 4) 278
— of ceanothus americanus (Tracing 5) 278
— of ceanothus americanus (Tracing 6) 279
Graph representing the group frequency of the results in table 2 (Fig. 1) 299
— representing the group frequency of the results in table 4 (Fig. 2) 304
— representing the group frequencies of the experiments in tables 2 and 4 (Fig. 3) 305
Ethylene glycol (Fig. 1) 317
— glycol (Fig. 2) 318
— glycol (Fig. 3) 318
Effect of 0.05 per cent caffeine in buffered Locke-Ringer's solution on the perfused frog's heart (Fig. 1) 323
— of 0.05 per cent caffeine citrate in buffered Locke-Ringer's solution on perfused frog's heart (Fig. 2) 323
— of 0.05 per cent sodium citrate in buffered Locke-Ringer's solution on the perfused frog's heart (Fig. 3) 324
Curves of light absorption of two screens used to induce violet fatigue (Fig. 1) 372
ILLUSTRATIONS

Curve of light absorption of colored substance excreted after santonin
(Fig. 1) ................................................................. 390
Curves of light absorption of urines secreted during the first six hours (con-
secutively numbered) and (broken line) of urine secreted between twenty-
third and twenty-fourth hours after the administration of 0.5 gram san-
tonin (Fig. 2) ............................................................. 391
Change in light absorption curve of mixture of equal parts of alcoholic potash
and 2 per cent santonin in alcohol (Fig. 3) .......................... 393
Curves of reaction velocity taken at λ 530µ of equal volumes of alcoholic
potash and (A) 1 per cent santonin in alcohol; (B) 2 per cent santonin in
alcohol (Fig. 4) ............................................................. 394
  — of reaction velocity of the action of caustic alkali on urine secreted dur-
ing the seventh hour after the administration of 0.5 gram santonin
(Fig. 5) ................................................................. 395
  — of excretion of colored substance in the urine after (A) 0.45 gram potas-
sium santoninate; (B) 0.5 gram powdered santonin; (C) 0.2 gram
powdered santonin; (D) 0.2 gram crystalline santonin; given by the
mouth (Fig. 6) ............................................................. 396
Comparison of violet perception and excretion of colored substance in urine
after the administration of 1.0 gram crystalline santonin by the mouth
(Fig. 7) ................................................................. 398
Description as for figure 7. A = after 0.2 gram powdered santonin; B = after
0.1 gram powdered santonin given by the mouth (Fig. 8) ........ 399
Respiration curve blood pressure curve, and urine flow of a dog injected sub-
cutaneously with acetaldehyde (Fig. 1) ................................. 431
Contraction curve of an isolated guinea pig’s rectum in a solution of acetal-
dehyde (Fig. 2) ............................................................. 433
Heart beat of an isolated frog’s heart perfused with acetaldehyde solution
(Fig. 3) ................................................................. 434
Tetanus curves of a gastrocnemius of the frog in 0.8 per cent NaCl and acetal-
dehyde solution (Fig. 4) ............................................ 435
Rabbit, anesthetised with urethane (Fig. 1) .............................. 443
Cat, anesthetized with urethane. Record of cardiometer and blood pres-
sure (Fig. 2) ............................................................. 444
Isolated rabbit’s heart perfused; 1:12,000 M-A-B Rivanol (Fig. 3) .... 445
Record of a frog’s heart perfused through the hepatic vein (Fig. 4) .... 445
Relation between acidity, dilution and peptic activity for gastron (Fig. 1) 471
  — between acidity, dilution, and peptic activity for a preparation of essence
of pepsin (Fig. 2) ............................................................. 473