CONTENTS

NUMBER 1, NOVEMBER, 1927
I. The Elimination of Nicotin in the Milk. By Robert A. Hatcher and Hilda Crosby .......................................................... 1
II. Regional Gradients in the Epinephrine Response of the Turtle Heart. By T. N. Rossides and Torald Sollmann .................. 7
III. The Effects of Epinephrine on the Auricular Tonus Waves of the Turtle Heart. By Torald Sollmann and T. N. Rossides .... 19
IV. Bismuth Subnitrate in the Therapy of Hypertension. By Edward J. Stieglitz ..................................................................... 23
V. The Seat of the Emetic Action of the Digitalis Bodies. By Robert A. Hatcher and Soma Weiss ................................. 37
VI. The Effects of Calcium, Barium, and Potassium on the Cardiac Output of Normal Dogs. By Tinsley Randolph Harrison, Cobb Pilcher and Charles P. Wilson .......................................................... 55
VII. The Spreading and Absorption of the Different Types of Bismuth Preparations, Introduced by Intramuscular and Subcutaneous Injection. By W. F. von Oettingen, T. Wingate Todd and Torald Sollmann .... 67

NUMBER 2, DECEMBER, 1927
VIII. Absorption from the Vagina. By G. Drummond Robinson .......... 81
IX. Cardiac Output in Dogs as Influenced by Chloral, Chloroform, Quinidine, Quinine, Homocamin and Ephedrin. By J. T. Halsey, Chapman Reynolds and S. N. Blackberg .......................................................... 89
X. The Electromotive Action of Drugs as the Cause of Their Toxicity. II. The Chemical Nature of the Tissue Constituents Which Produce Bioelectricity. By R. Beutner .................................................. 101
XI. The Electromotive Action of Drugs as a Cause of Their Toxicity. III. The Electromotive Action of Alkaloids on Tissues Compared with That on Proteins, Lipoids and “Oils.” By R. Beutner ........................................................................ 115
XII. The Comparative Physiological Action of Phenylenethanolamine. By Gordon A. Alles ......................................................... 121
XIII. The Effect of Adrenaline on the Intestinal Volume. By A. C. White ... 135
XIV. The Vascular Reaction of the Pilocarpinized Submaxillary Gland to Histamine. By Margaret E. MacKay .......................... 147

NUMBER 3, JANUARY, 1928
XVII. Further Experiments on the Effects of Small Doses of Vaso-Constrictor Substances on the Kidney. By A. E. Livingston ........ 181
XVIII. Colour Vision After Intravenous Injection of Santonin. By Wilfrid Marshall ......................................................... 189
CONTENTS

XIX. Azo Dyes Containing Antimony in the Treatment of Trypanosomiasis.
   By Fitzgerald Dunning and D. I. Macht ........................................ 205
XX. Respiratory Stimulants in Acute Cocaine Poisoning in Rabbits.
   By C. A. Dragstedt and V. F. Lang ............................................. 215
XXI. The Influence of Quinidine on the Cardiac Irregularity Produced by
      Digitalis. By Chas. C. Haskell .............................................. 223
XXII. Studies in Protoplasm Poisoning. II. Recovery. By L. F.
       Shackell ................................................................. 237

NUMBER 4, FEBRUARY, 1928

XXIII. Physiological Reactions Induced by Alpha-Lobelin. I. Intravenous
        Injections During Anesthesia and Certain Other Forms of Depression.
        By M. J. King, Helen R. Hosmer and M. Dresbach ...................... 241
XXIV. Hemolactic Changes in Vitro From Agents Causing Anaphylactoid
       Reactions. By P. J. Hanflik, F. De Eds, L. W. Empey and W. H. Farr .... 273
XXV. The Effect of Isoamylethyl Barbituric Acid (Amytal) on the Pulse
      Rate of the Rat. By R. G. Haekins, M. O. Lee and E. P. Durrant .... 295
XXVI. Studies in Serum Calcium. I. Oral Administration. By J. C.
       Hoyle .............................................................................. 309

NUMBER 5, MARCH, 1928

XXVII. On the Toxicology of Mecurochrome Alone and in Combination with
        Glucose. By David I. Macht and Wilton C. Harden ...................... 321
XXVIII. The Effect of Salicylates on the Nitrogen Metabolism with Special
        Reference to the Effect of the Cation of the Salt. By G. P. Grabfield
        and Emily Knapp ............................................................ 341
XXIX. The Supposed Influence of Polarized Light on the Deterioration of
       Digitalis. By W. R. Bond and E. W. Gray .................................. 351
XXX. The Influence of Certain Arsenicals upon Sulphur Excretion. By
      Frank P. Underhill and Alice Dimick ....................................... 359
XXXI. Studies on Crystalline Insulin. III. Further Observations on the
       Crystallization of Insulin and on the Nature of the Sulfur Linkage.
       The Isolation of Cystine and Tyrosine from Hydrolyzed Crystalline
       Insulin. By Vincent du Vigneaud, H. Jensen, and Oskar Wintersteiner . 367
XXXII. Studies on Crystalline Insulin. IV. The Isolation of Arginine,
        Histidine, and Leucine. By H. Jensen, Oskar Wintersteiner, and
        Vincent du Vigneaud ......................................................... 387
XXXIII. Studies on Crystalline Insulin. V. The Distribution of Nitrogen in
        Crystalline Insulin. By Oskar Wintersteiner, Vincent du Vigneaud,
        and H. Jensen ................................................................. 397

NUMBER 6, APRIL, 1928

XXXIV. The Effect of Morphine and Some of the Other Opium Alkaloids
        on the Muscular Activity of the Alimentary Canal. III. Action on the
        Stomach in Unanesthetized Dogs. By O. H. Plant and G. H. Miller .... 413
XXXV. The Effect of Morphine and Some of the Other Opium Alkaloids on
        the Muscular Activity of the Alimentary Canal. IV. Action of Mor-
        phine on the Colon of Unanesthetized Dogs and Man. By O. H. Plant
        and G. H. Miller ............................................................. 437
XXXVI. Antagonism of Adrenaline by Ergotamine. By R. Mendez ........... 451
XXXVII. Studies on Experimental Shock with Especial Reference to Its
        Treatment. By Maurice I. Smith ............................................. 465
<table>
<thead>
<tr>
<th>Illustration Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Epinephrine gradient of heart rate (Fig. 1)</td>
<td>11</td>
</tr>
<tr>
<td>Relation of acceleration to the concentration of epinephrine (Fig. 2)</td>
<td>12</td>
</tr>
<tr>
<td>Regional gradient of frequency-incidence (Fig. 3)</td>
<td>13</td>
</tr>
<tr>
<td>Concentration gradient of frequency-incidence (Fig. 4)</td>
<td>14</td>
</tr>
<tr>
<td>Suppression of auricular tone waves and lowering of tone by epinephrine, 1:10⁴ (Fig. 1)</td>
<td>20</td>
</tr>
<tr>
<td>Incomplete depression of the tonus waves by epinephrine, 1:10⁷ (Fig. 2)</td>
<td>21</td>
</tr>
<tr>
<td>After-slowing in Ringer solution, following on epinephrine, 1:10⁷ (Fig. 3)</td>
<td>21</td>
</tr>
<tr>
<td>Stimulation of the tone waves by epinephrine, 1:10⁷ (Fig. 4)</td>
<td>21</td>
</tr>
<tr>
<td>Effects of calcium, barium, and potassium on the cardiac output of normal dogs (Chart 1)</td>
<td>60</td>
</tr>
<tr>
<td>Effects of calcium, barium, and potassium on the cardiac output of normal dogs (Chart 2)</td>
<td>61</td>
</tr>
<tr>
<td>Radiograms of rabbits, 0, 2 and 9 days after intramuscular injection of bismuth hydroxide suspended in water (Fig. 1)</td>
<td>71</td>
</tr>
<tr>
<td>Anatomical preparations of rabbits, 0, 23 and 32 days after the intramuscular injection of bismuth hydroxide, water suspension; treated with hydrogen sulphide (Fig. 2)</td>
<td>72</td>
</tr>
<tr>
<td>Radiogram of the leg and the sulphide preparations of the leg and back of a rabbit, eleven weeks after the subcutaneous injection of bismuth hydroxide, water suspensions (Fig. 3)</td>
<td>74</td>
</tr>
<tr>
<td>Sulphide preparations of a rabbit, 0, 21 and 51 days after the intramuscular injection of dibismuthyl monosodium citrate solution (Fig. 4)</td>
<td>75</td>
</tr>
<tr>
<td>Radiograms of the left leg of a rabbit, 0 and 60 days, and the anatomical preparation of the same animal 102 days after the intramuscular injection of potassium bismuth tartrate, oil suspension (Fig. 5)</td>
<td>76</td>
</tr>
<tr>
<td>Charts of the chemical determination of the absorption of bismuth from the site of the injection in the rabbit (Fig. 6)</td>
<td>77</td>
</tr>
<tr>
<td>Absorption from the vagina (Fig. 1)</td>
<td>83</td>
</tr>
<tr>
<td>Absorption from the vagina (Fig. 2)</td>
<td>84</td>
</tr>
<tr>
<td>Absorption from the vagina (Fig. 3)</td>
<td>86</td>
</tr>
<tr>
<td>Percentage changes (Fig. 1)</td>
<td>91</td>
</tr>
<tr>
<td>Physiological action of phenylethanolamine (Fig. 1)</td>
<td>125</td>
</tr>
<tr>
<td>Action of phenylethanolamine (Fig. 2)</td>
<td>126</td>
</tr>
<tr>
<td>Action of phenylethanolamine (Fig. 3)</td>
<td>127</td>
</tr>
<tr>
<td>Action of phenylethanolamine (Fig. 4)</td>
<td>128</td>
</tr>
<tr>
<td>Cat, 1.55 kgm, female, (ether), brain and cord pithed. 0.03 mgm. adrenaline HCl intravenous (Fig. 1)</td>
<td>139</td>
</tr>
<tr>
<td>Cat, 1.95 kgm, male, (ether), brain and cord pithed. 0.05 mgm. adrenaline HCl intravenous (Fig. 2)</td>
<td>140</td>
</tr>
<tr>
<td>Cat, 1.95 kgm, male, (ether), brain and cord pithed. 0.05 mgm. adrenaline HCl intravenous (Fig. 3)</td>
<td>141</td>
</tr>
</tbody>
</table>
Effect of intravenous injection of 0.25 mgm. histamine on the blood pressure and on the blood flow through the gland (Fig. 1) ........................................... 154
Reversal effect of histamine after pilocarpine, on the secretion of blood flow (Fig. 2) ................................................................. 155
Vaso-dilator effect of histamine is restored after atropine, though the acceleration in blood flow is less than in figure 1 (Fig. 3) ............... 156
Specimen record showing kidney volume and blood-flow estimations, blood pressure, and urine flow together with calibration of bellows (Fig. 1) ....... 162
Diagram of apparatus used to estimate the volume of blood flowing through the kidney (Fig. 2) ..................................................... 163
Illustration of a Venturi meter (Fig. 1) .......................................... 172
Method of inserting one end of the Venturi meter into the stump of the superior mesenteric artery and the other end into the aorta as used for measuring blood flow through the left kidney (Fig. 2) ..................... 173
Calibration curve of a glass Venturi meter having suitable capacity for a rabbit's kidney (Fig. 3) ......................................................... 175
How the aorta (A) may be constricted by a ligature (L) to form a Venturi meter (Fig. 4) ................................................................. 176
Calibration of a rabbit's aorta (Fig. 5) ............................................. 177
Effect on blood flow through the kidney (B.P.), blood pressure (B.P.), kidney volume (K.V.), and urine elimination (urine) of a rabbit, caused by the intravenous injection of 0.2 cc. of 1:100,000 adrenalin (Fig. 1) .......... 183
— — on blood flow through the kidney (B.P.), kidney volume (K.V.), blood pressure (B.P.), and urine elimination (urine) of a rabbit, caused by the intravenous injection of 0.1 cc. of 1:100 pituitrin (Fig. 2) ............... 184
— — on blood flow through the kidney (B.P.), kidney volume (K.V.), blood pressure (B.P.), and urine elimination (urine) of a rabbit, caused by the intravenous injection of 0.75 mgm. of barium chloride (Fig. 3) ............. 185
Influence of quinidine on the cardiac irregularity produced by digitalis (Fig. 1) ................................................................. 225
— — of quinidine on the cardiac irregularity produced by digitalis (Fig. 2). 226
— — of quinidine on the cardiac irregularity produced by digitalis (Fig. 3). 228
— — of quinidine on the cardiac irregularity produced by digitalis (Fig. 4). 229
— — of quinidine on the cardiac irregularity produced by digitalis (Fig. 5). 230
— — of quinidine on the cardiac irregularity produced by digitalis (Fig. 6). 231
— — of quinidine on the cardiac irregularity produced by digitalis (Fig. 7). 232
— — of quinidine on the cardiac irregularity produced by digitalis (Fig. 8). 233
Respiratory and blood pressure effects of alpha-lobelin. Dog. 4. Light morphine narcosis (Fig. 1) ...................................................... 258
— — and blood pressure effects of alpha-lobelin. Cat 22. Full amytal anesthesia (Fig. 2) ............................................................. 260
Sedimentation of dog blood at the end of ninety minutes, etc. (Fig. 1) .... 289
Effect of single doses of calcium carbonate given orally on the serum calcium (Animals 6 and 8) (Fig. 1) ........................................... 313
Effects of repeated two-hourly, and daily doses of calcium carbonate, given orally, on the serum calcium (Fig. 2) .................................... 315
— — of repeated two-hourly, and daily doses of calcium carbonate, given orally, on serum calcium (Fig. 3) .............................. 316
ILLUSTRATIONS

Effects of repeated two-hourly, and daily doses of calcium lactate, given orally, on the serum calcium (Fig. 4) .................. 317
Toxicology of mercurochrome alone and in combination with glucose (Fig. 1) ......................................................... 329
Showing the urinary nitrogen and sulphur excretion in four experiments in which sodium salicylate was given on the three days indicated by arrows (Fig. 1) .............................................................. 342
— the urinary nitrogen excretion after lithium (L), sodium (N) and potassium (K) salicylates in comparable doses of salicyl (Fig. 2) .................. 343
— the urinary uric acid excretion after the administration of the three salts used in these experiments, to demonstrate the variation in the time of excretion of this component as affected by the cation of the salt given (Fig. 3) .............................................................. 344
Polarizing chamber (Fig. 1) ......................................................... 355
Recording gastric motility with moderately fast drum and showing details of the waves and effects of 0.5 mgm. morphine sulphate per kilogram (Fig. 1) .............................................................. 421
Duration of effects of moderate and large doses (Fig. 2) ........ 423
Effect of small doses (Fig. 3) ......................................................... 424
Action of morphine on stomach (Fig. 4) ......................................................... 425
Tracing from experiment with fluoroscopic control (Fig. 5) .............................................................. 428
Effects of 1 mgm. morphine sulphate per kilogram on gastric motility in a cat (Fig. 6) .............................................................. 430
Comparing other opium derivatives with morphine, in equal doses and on the same dog (Fig. 7) .............................................................. 432
— other opium derivatives with morphine in equal doses and on the same dog (Fig. 8) .............................................................. 433
Recording motility of the colon with moderately fast drum, showing details of the waves and the effects of 5 mgm. morphine sulphate per kilogram (Fig. 1) .............................................................. 441
Comparing the effects of moderate and large doses of morphine on the colon (Fig. 2) .............................................................. 443
Effect of small doses of morphine on the colon (Fig. 3) .............................................................. 445
— of morphine on the activity of human colon (Fig. 4) .............................................................. 447
Action of adrenaline on rabbit's uterus in presence of ergotamine (Fig. 1) .............................................................. 452
Antagonism of adrenaline by ergotamine in isolated uterus of rabbit (Fig. 2) .............................................................. 454
Rate of action of adrenaline (Fig. 3) .............................................................. 455
Action of adrenaline on vas deferens of guinea pig (Fig. 4) .............................................................. 456
Antagonism of adrenaline by ergotamine on isolated vas deferens of guinea pig (Fig. 5) .............................................................. 457
Action of adrenaline and ergotamine on isolated gut of rabbit (Fig. 6) .............................................................. 459
— of adrenaline and ergotamine on uterus of guinea pig (Fig. 7) .............................................................. 460
— of adrenaline and ergotamine on isolated uterus of rat (Fig. 8) .............................................................. 461
Studies on experimental shock (Fig. 1) .............................................................. 468
— on experimental shock (Fig. 2) .............................................................. 469
— on experimental shock (Fig. 3) .............................................................. 471
— on experimental shock (Fig. 4) .............................................................. 476
VIII ILLUSTRATIONS

Effect on arterial and venous pressure of 0.5 mgm. standard powdered pituitary injected intravenously (Fig. 5) ........................................... 477
— of epinephrine and of pituitary on arterial and venous pressure in shock
(Fig. 6) .................................................................................. 478
Histamine shock. Primary and secondary (Chart 1) ...................... 482
— primary and secondary shock (Fig. 7) ........................................... 483
Effect of pituitary extract in primary histamine shock (Chart 2) ........ 485
— of pituitary extract on primary histamine shock (Fig. 8) ................ 486
— of pituitary extract in glucose solution and of gum-saline on secondary
histamine shock (Chart 3) .......................................................... 490
— of gum-saline on secondary histamine shock (Chart 4) ............... 490
Traumatic shock by intestinal exposure and manipulation supplemented with
hemorrhage; and effect of intravenous infusion of physiologic saline or
glucose (Chart 5) ........................................................................ 495
Effect of pituitary extract on traumatic shock (Chart 6) ................. 496
— of gum-saline on traumatic shock (Chart 7) ............................... 497
Vasomotor changes in traumatic shock (Fig. 9) .............................. 503
— changes in traumatic shock (Fig. 10) ...................................... 504