CONTENTS

NUMBER 1, SEPTEMBER, 1935

I. The Relative Efficiency of a Series of Analeptics as Antidotes to Sublethal and Lethal Dosages of Pentobarbital, Chloral Hydrate, and Tribromethanol ("Avertin"). By O. W. Barlow. 1

II. Studies on Ether Dosage after Pre-Anesthetic Medication with Narcotics (Barbiturates, Magnesium Sulphate and Morphine). By Frank A. Calderone .......................................................... 24

III. The Pharmacological Action of the Alkaloids of Furmaraceous plants. II. Corydine. By R. A. Waud ................................................ 40

IV. Studies on Barbiturates. XII. Factors Governing the Distribution of Barbiturates. By James M. Dille, Charles R. Linegar and Theodore Koppanyi .......................................................... 46

V. Studies on Barbiturates. XIII. Analysis of the Duration of Action of Barbiturates. By Theodore Koppanyi, Charles R. Linegar and James M. Dille .......................................................... 62

VI. Narcosis and the Chronaxie. By P. K. Knoefel .......................... 72

VII. Alcohol Injected Intravenously: Effect of Habituation on Rate of Metabolism. By Henry W. Newman and Windsor C. Cutting .......................................................... 82

VIII. Sex Variation in the Ketonuria of Ether Anesthesia in Rats. By George A. Emerson .......................................................... 90

IX. The Quantitative Assay for the Testicular Hormone by the Comb-growth Reaction. Second Communication. By T. F. Gallagher and F. C. Koch .......................................................... 97

X. A Comparative Study of Choline and Certain of Its Analogues. I. The Pharmacological Activity of Acetylphosphocholine and Acetylselenocholine Relative to Acetylcholine. By Arnold DeM. Welch and Martin H. Roepke .......................................................... 118

NUMBER 2, OCTOBER, 1935

XI. Studies of Morphine, Codeine and Their Derivatives. IX. Methyl Ethers of the Morphine and Codeine Series. By Nathan B. Eddy .......................................................... 127

XII. The Purification of the Pressor and Oxytocic Hormones of the Pituitary Gland and Some Observations on the Chemistry of the Products. By R. L. Stehle and A. M. Fraser .......................................................... 136

XIV. The Effect of Temperature on the Calorigenic Action of Dinitrophenol in Normal and Thyroidectomized Pigeons. By Oscar Riddle and Guinevere C. Smith. 173


XVI. Antipyretic and Toxic Effects of Combinations of Acetanilid with Sodium Bromide and with Caffeine. By Paul K. Smith and W. E. Hambourger. 200

XVII. The Effect of Zinc Salts on the Action of Insulin. By D. A. Scott and A. M. Fisher. 206


XIX. The Rate of Production of Anesthesia in Mice by Ether Containing Aldehyde and Peroxide. By Peter K. Knoefel and Florence C. Murrell. 235


XXI. Studies of Morphine, Codeine and Their Derivatives. X. Desoxymorphine-C, Desoxycodeine-C and Their Hydrogenated Derivatives. By Nathan B. Eddy and Homer A. Howes. 257

XXII. Notes on Acetyl-methyl-choline. By Reid Hunt. 268

XXIII. Study of Acetyl-methyl-choline. By Clayton S. Smith, Sam Rosenfeld, Jr., and Leon J. Sacks. 274

XXIV. The Effects of Morphine and Its Derivatives on Intestinal Movements. IV. Dihydropseudocodeine and Dihydroallocodeine. By Hugo Krueger, Homer Howes, and Harold Gay. 288

XXV. The Pharmacological Action of Dendrobine, the Alkaloid of Chin-shih-hu. By K. K. Chen and A. Ling Chen. 319


XXVII. Studies of Phenanthrene Derivatives. V. Homologous Acids and Aldehydes and Some of Their Derivatives. By Nathan B. Eddy. 354

XXVIII. The Preparation of Prolactin. By Robert W. Bates and Oscar Riddle. 365

XXIX. The Effect of Phlorizin upon Glomerular Filtration. By Erwin E. Nelson. 372

XXX. The Wash-out of Cardiac Glucosides from the Frog's Ventricle. By G. Kingisepp. 377
CONTENTS

XXXI. Spinal Reflexes in Nicotin Poisoning. By F. E. Franke and M. Helen Denvir ........................................... 390
XXXIII. A Study of the Action of Drugs on Bell’s Muscle—“Muscles of the Ureters.” By Charles M. Gruber .................. 412
XXXIV. Studies of Phenanthrene Derivatives. VI. Amino alcohols of the Ethanolamine and Propanolamine Type. By Nathan B. Eddy ................................................................................. 419
XXXV. A Comparison of the Actions of Dilaudid Hydrochloride and Morphine Sulphate upon Segments of Excised Intestine and Uterus. By Charles M. Gruber, John T. Brundage, Anthony DeNote, and Raymond Heiligman ........... 430
XXXVI. The Action of Posterior Pituitary Hormone upon the Blood Sugar of the Heart. By H. C. Ellsworth ..................... 435
XXXVIII. State of Bismuth in Body Fluids and Tissues. By P. J. Hanzlik and A. P. Richardson ..................................... 447
XXXIX. The Fate of Procaine in the Dog. By John Gaskin Dunlop . 464
XL. Index .................................................................................................................................................. 483
ILLUSTRATIONS

<table>
<thead>
<tr>
<th>Illustration</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Series of analeptics as antidotes (Fig. 1)</td>
<td>7</td>
</tr>
<tr>
<td>Series of analeptics as antidotes (Fig. 2)</td>
<td>13</td>
</tr>
<tr>
<td>Series of analeptics as antidotes (Fig. 3)</td>
<td>15</td>
</tr>
<tr>
<td>Series of analeptics as antidotes (Fig. 4)</td>
<td>17</td>
</tr>
<tr>
<td>Tracing showing the effects on the isolated uterus of the rabbit of 1:33,000 corydine as compared with one in ten million adrenalin (Fig. 1)</td>
<td>43</td>
</tr>
<tr>
<td>Studies on barbiturates (Fig. 1)</td>
<td>49</td>
</tr>
<tr>
<td>Studies on barbiturates (Fig. 2)</td>
<td>52</td>
</tr>
<tr>
<td>Narcosis and the chronaxie (Fig. 1)</td>
<td>74</td>
</tr>
<tr>
<td>Narcosis and the chronaxie (Fig. 2)</td>
<td>76</td>
</tr>
<tr>
<td>Narcosis and the chronaxie (Fig. 3)</td>
<td>76</td>
</tr>
<tr>
<td>Narcosis and the chronaxie (Fig. 4)</td>
<td>77</td>
</tr>
<tr>
<td>Narcosis and the chronaxie (Fig. 5)</td>
<td>78</td>
</tr>
<tr>
<td>Course of blood alcohol concentration after injection of test dose (Fig. 1)</td>
<td>84</td>
</tr>
<tr>
<td>Course of blood alcohol concentration after injection of test dose (Fig. 2)</td>
<td>84</td>
</tr>
<tr>
<td>Course of blood alcohol concentration after injection of test dose (Fig. 3)</td>
<td>85</td>
</tr>
<tr>
<td>Course of blood alcohol concentration after injection of test dose (Fig. 4)</td>
<td>86</td>
</tr>
<tr>
<td>Relation of initial comb length to growth (Fig. 1)</td>
<td>104</td>
</tr>
<tr>
<td>Relation of initial comb length to growth (Fig. 2)</td>
<td>108</td>
</tr>
<tr>
<td>Quantitative assay for testicular hormone (Fig. 3)</td>
<td>110</td>
</tr>
<tr>
<td>Quantitative assay for testicular hormone (Fig. 4)</td>
<td>111</td>
</tr>
<tr>
<td>Accuracy of routine assay in fractionation studies (Fig. 5)</td>
<td>114</td>
</tr>
<tr>
<td>Pressor and oxytocic hormones of pituitary gland (Chart 1)</td>
<td>139</td>
</tr>
<tr>
<td>Pressor and oxytocic hormones of pituitary gland (Chart 2)</td>
<td>139</td>
</tr>
<tr>
<td>Pressor and oxytocic hormones of pituitary gland (Chart 3)</td>
<td>140</td>
</tr>
<tr>
<td>Pressor and oxytocic hormones of pituitary gland (Chart 4)</td>
<td>141</td>
</tr>
<tr>
<td>Pressor and oxytocic hormones of pituitary gland (Chart 5)</td>
<td>142</td>
</tr>
<tr>
<td>Pressor and oxytocic hormones of pituitary gland (Chart 6)</td>
<td>143</td>
</tr>
<tr>
<td>Pressor and oxytocic hormones of pituitary gland (Chart 7)</td>
<td>144</td>
</tr>
<tr>
<td>Pressor and oxytocic hormones of pituitary gland (Chart 8)</td>
<td>144</td>
</tr>
<tr>
<td>Pressor and oxytocic hormones of pituitary gland (Chart 9)</td>
<td>145</td>
</tr>
<tr>
<td>Pressor and oxytocic hormones of pituitary gland (Chart 10)</td>
<td>146</td>
</tr>
<tr>
<td>Relationship between hypnotic potencies and relative surface tensions of the unsymmetrical alkylaryl ureas (Fig. 1)</td>
<td>150</td>
</tr>
<tr>
<td>Minimum hypnotic and minimum lethal doses of the unsymmetrical alkylaryl ureas (Fig. 2)</td>
<td>163</td>
</tr>
<tr>
<td>Minimum hypnotic and minimum lethal doses of the unsymmetrical alkylaryl ureas (Fig. 3)</td>
<td>164</td>
</tr>
<tr>
<td>Minimum hypnotic and minimum lethal doses of some commonly used commercial hypnotics (Fig. 4)</td>
<td>164</td>
</tr>
</tbody>
</table>
Time relationships of the various phases of the intoxication induced by minimum hypnotic doses of some commonly used commercial hypnotics (Fig. 5) .......................................................... 165
Toxicity of sodium bromide (Fig. 1) ...................................................... 201
— of caffeine (Fig. 2) ........................................................................ 202
Therapeutic doses of acetanilid, sodium bromide and caffeine in milligrams per kilogram (Fig. 3) ................................................................................. 204
Level of the blood sugar of rabbits following the injection of 2.0 units of insulin with and without zinc chloride (Fig. 1) .................. 212
Amount of acetanilid ingested and duration of life of white mice given acetanilid in their food (Fig. 1) ......................................................... 224
Five per cent sodium citrate (Fig. 2) ..................................................... 226
Two per cent acetanilid and 5 per cent sodium citrate (Fig. 3) ........... 226
— per cent acetanilid and sodium citrate (5 per cent and 2 per cent) (Fig. 4) ................................................................................. 227
Results of feeding 25 mice on 3 per cent acetanilid (Fig. 5) ............... 230
— of feeding 25 mice on 3 per cent acetanilid with the addition of 1 per cent of saponin (Fig. 6) ......................................................... 231
Rate of production of anesthesia (Fig. 1) ............................................... 237
— of production of anesthesia (Fig. 2) .................................................. 238
— of production of anesthesia (Fig. 3) .................................................. 239
— of production of anesthesia (Fig. 4) .................................................. 240
Dilator power of various amines against arecoline bronchoconstriction (Fig. 1) ................................................................................. 244
— power of various amines against arecoline bronchoconstriction (Fig. 2) ................................................................................. 248
Averaged voluntary activity of nicotinized and control male rats (Fig. 1) 277
— voluntary activity of nicotinized and control female rats (Fig. 2) .... 277
Voluntary activity of a typical nicotinized female rat (Fig. 3) ............. 278
— activity of a typical nicotinized male rat (Fig. 4) ............................ 278
— activity of a typical control female rat (Fig. 5) ............................... 279
— activity of a typical control male rat (Fig. 6) ................................. 280
Effect of nicotine on weight (Fig. 7) .................................................... 280
— of various doses of morphine on movements of the ileum (Fig. 1) .... 294
Relationship between rhythmic frequency and dose (Figs. 2–7) ......... 296
— between the volume of water displaced or external work done by the intestine and drug dosage (Fig. 8) ...................................... 297
— between drug dosage and the number of peristaltic waves (Figs. 9–13) ................................................................................. 297
Method of obtaining volume distribution curves (Fig. 14) .................. 311
Volume distribution curves (Figs. 15–24) .............................................. 314–315
Action of dendrobine on smooth muscle organs (Fig. 1) ................. 322
Effects of dinitrophenol on the daily excretion of metabolites in the urine, body weight and basal metabolism of patient A (Fig. 1) ............ 330
— of dinitrophenol on the daily excretion of metabolites in the urine, body weight and basal metabolism of patient B (Fig. 2) ............ 331
— of dinitrophenol on the daily excretion of metabolites in the urine, body weight and basal metabolism of patient C (Fig. 3) ............ 332
— of phlorizin intravenously during diuresis (Fig. 1) ................. 374
Ordinate: Height of mechanical response of ventricle; abscissa: time in minutes (Fig. 1) .......................................................... 381
ILLUSTRATIONS

Curves as in figure 1 (Fig. 2) .................................................. 381
—— as in figure 1 (Fig. 3) .................................................. 382
—— as in figure 1 (Fig. 4) .................................................. 383
—— as in figure 1 (Fig. 5) .................................................. 385
—— as in figure 1 (Fig. 6) .................................................. 385
Irritability of a spinal reflex arc before and after the administration of nicotine (Fig. 1) .................................................. 395
Spinal reflexes in nicotine poisoning (Fig. 2) .................................................. 396
Growth rate of rats receiving 1 gram per kilogram of tolysin contrasted with litter mate controls (Fig. 1) .................................................. 403
—— rate of rats receiving varying doses of Na cinchophen contrasted with litter mate controls (Fig. 2) .................................................. 406
Cinchophen and tolysin in rats (Figs 3–6) .................................................. 408
Sketch showing the inner surface of the cat’s urinary bladder magnified 5 times (Fig. 1) .................................................. 413
Tyrode’s and Locke’s solutions, pH 7.6 to 7.8 at a temperature of 36°C. (Fig. 2) ........ 415
Locke’s solution, pH 7.6 to 7.8 at a temperature of 38.5°C. (Fig. 3) ........ 416
Conditions of the bath were same as those used in figure 3 (Fig. 4) ........ 417
Excised intestine of the cat (Fig. 1) .................................................. 432
Action of pituitary hormone on blood sugar (Fig. 1) .................................................. 437
—— of pituitary hormone on blood sugar (Fig. 2) .................................................. 437
Effect of dinitrophenol on blood velocity (Fig. 1) .................................................. 443
Patient L. W., no. 31, given 300 mgm. dinitrophenol daily for four weeks (Fig. 2) .................................................. 444
—— N. L., no. 9, given 300 mgm. dinitrophenol daily for six weeks (Fig. 3) ... 445