## CONTENTS

## Number 1, September, 1931

I. The Action of Oestrin on the Oxygen Consumption of the Uteri of Mice.	
By J. Christodoss David	1
II. The Pharmacological Action of the Principles Isolated from Ch'an Su, the	
Dried Venom of the Chinese Toad. By K. K. Chen, H. Jensen and A.	
Ling Chen	13
III. The Relation of Acquired Morphine Tolerance to the Adrenal Cortex.	
By Eaton M. MacKay	51
IV. Studies in Cancer Chemotherapy. X. The Effect of Thorium, Cerium,	
Erbium, Yttrium, Didymium, Praseodymium, Manganese, and Lead	
upon Transplantable Rat Tumors. By L. C. Maxwell and Fritz	
Bischoff. With the technical assistance of Ella May Ottery	61
V. The Chemotherapy of Streptococcus Infections of Mice with Special Ref-	
erence to Salicyl Compounds. By John A. Kolmer and George W.	
Raiziss. With the assistance of Anna M. Rule	71
VI. Absorption and Retention of Calcium Chloride and Calcium-Magnesium-	
inosite-hexaphosphoric Acid Calcium. By J. C. Forbes and Hazelwood	
Irving	79
VII. On the Anesthetic Action of Furan. By J. F. A. Johnston	85
VIII. Anesthetic Potency in the Cyclo Hydrocarbon Series. By V. E. Hen-	
derson and J. F. A. Johnston	89
IX. The Gonad-stimulating Substances of the Anterior Lobe of the Pituitary	
Body and of Pregnancy-urine. By Zonja Wallen-Lawrence and H. B.	
Van Dyke	93
X. Effect of Ultra-violet Rays on Epinephrine and Related Products. (Pre-	
liminary Report.) By Paul L. Ewing, Philip Blickensdorfer and Hugh	
A. McGuigan	125
XI. The Iodine Content of Commercial Desiccated Anterior Pituitary Prep-	
arations. By Karl Closs	131
XII. Studies on Calcium. V. Blood and Urine Levels of Calcium after Per-	
oral and Deep Muscular Administration of Calcium Gluconate in Man.	
By Arnold L. Lieberman	139
XIII. Heat Regulation and Water Exchange. XII. The Underlying Mech-	
anism of Fever as Illustrated by Cocaine Poisoned Rabbits. By Henry	
G. Barbour and Hubert T. Marshall	147
XIV. Modification of Nerve Response by Veratrine, Protoveratrine and Aco-	
nitine. By Helen Tredway Graham and Herbert S. Gasser	163
XV. Absorption and Utilization of the Carbohydrate of Arctium Lappa as	
Shown by a Protein-sparing Action on the Diet of Dogs. By John C.	
Krantz, Jr., and C. Jelleff Carr	187
, , , :	

iv CONTENTS

XVI. Toxicological Studies of Derris Elliptica and Its Constituents. I. Rotenone. By H. B. Haag	193
and Wesley Bourne	209
XVIII. The Effect of Avertin upon the Circulation. By B. B. Raginsky, Wesley Bourne and Maurice Bruger	219
XIX. The Influence of Electrolytes on the Permeability of Tissues to Crystal- line Insulin. By R. J. Hamburger	
Number 2, October, 1931	
XX. The Influence of Lactic Acid on Hemolysis. By J. Sládek, I. A. Parfent- jev and B. Sokoloff	
XXI. Ergotoxine Miosis. By F. F. Yonkman	251
XXII. The Response of the Submaxillary and Parotid Glands of the Dog to	
Histamine. By George Stavraky	
bits to Successive Doses of Insulin. By Eugene L. Jackson	
XXIV. The Hypoglycemic Action of the Hypophysectomized Dog's Blood.	
By R. J. Cowley.	287
XXV. The Mechanism of the Hypoglycemia Produced by Guanidine and Carbon Tetrachloride Poisoning and Its Relief by Calcium Medication.	
By A. S. Minot	295
XXVI. Pharmacological Effect of Impurities in Ether. By Walter L. Men-	
denhall and Ruth Connolly	315
sorcinol and Heptylresorcinol under Different Conditions. By B. H.	
Robbins	325
XXVIII. A Method for the Quantitative Determination of Hexylresorcinol	
in Tissues, Blood and Excreta. By B. H. Robbins and L. G. Wesson. XXIX. Continued Drinking of Alcohol in Low Concentrations: Some Ex-	335
perimental Results. By P. J. Hanzlik	339
XXX. Studies on the Metabolism of Tartrates. I. A Colorimetric Method	
for the Determination of Tartaric Acid. By Frank P. Underhill, F. I. Peterman and A. G. Krause. With the coöperation of C. S. Leonard and	
T. C. Jaleski	351
XXXI. Studies on the Metabolism of Tartrates. II. The Behavior of Tar-	
trate in the Organism of the Rabbit, Dog, Rat and Guinea Pig. By Frank P. Underhill, C. S. Leonard, E. G. Gross and T. C. Jaleski	250
XXXII. Studies on the Metabolism of Tartrates. III. The Behavior of	308
Tartrates in the Human Body. By Frank P. Underhill, F. I. Peterman,	
T. C. Jaleski and C. S. Leonard	381
Number 3, November, 1931	
XXXIII. The Action of Some Diuretics upon the Aglomerular Kidney. By	
Raymond N. Bieter	399
N. Bieter	407

CONTENTS V

XXXV. The Pharmacological Action of Some Analogues of Physostigmine.  By John A. Aeschlimann and Marc Reinert	
George B. Kleindorfer and J. T. HalseyXXXVIII. Caffeine Effect on the Crest Uniformity of Muscular Fatigue	
Curves. By Ralph H. Cheney	
XL. Effect of Ephedrine on Contractions of the Alimentary Canal in Unanes-	
thetized Dogs. By J. H. Kinnaman and O. H. Plant	47' 48'
the Salivary Glands. By George W. Stavraky	499
XLIII. Interaction of Pilocarpine and Histamin on the Intestine. By Frederick Bernheim	509
XLIV. A Note on Tin Compounds in the Chemotherapy of Experimental Staphylococcus Infections. By John A. Kolmer, Herman Brown and	
Malcolm J. Harkins	518
ance of Anna M. Rule	521
By Frank Wokes	531
XLVII. The Action of Papaverine on the Muscular Activity of the Alimentary Canal. By Erwin G. Gross and Donald H. SlaughterXLVIII. The Action of Blister Fluid on the Isolated Rat's Uterus. By G. H.	551
Percival and C. M. Scott	563
XLIX. Pharmacology and Toxicology of Monohydroxy-mercuri-di-iodo- resorcin-sulphonphthalein. By David I. Macht and Helen M. Cook	<b>57</b> 1
Number 4, December, 1931	
L. Magnesium Absorption in Dogs and Its Effect upon the Metabolism of	00
Calcium. By Henry G. Barbour and James E. Winter	607
By Maurice I. Smith and E. F. Stohlman	621
Phillips and Clyde Brooks	637
LIII. The Importance of a Standard of Reference in Toxicity Determina- tions of Mercurochrome. By J. H. Burn and G. D. Greville	645
LIV. The Responses of the Excised Batrachian Alimentary Canal to Autonomic Drugs. I. Xenopus Laevis (The South African Clawed Toad)— Pilocarnine Physostigmine Adrenaline By David Enstein	653

## CONTENTS

LV. Bulbocapnine Catalepsy and the Grasp Reflex. By Curt P. Richter and Arthur S. Paterson	
Sex Hormone. By T. J. Becker, C. H. Mellish, F. E. D'Amour and R. G. Gustavson	693
LVII. The Tolerance of the Toad towards Strophanthin. By David Epstein	807
LVIII. Index.	

## ILLUSTRATIONS

Oxygen consumption of uteri of mice (Fig. 1)	6
(Fig. 2)	8
Average oxygen consumptions of uteri (Fig. 3)	9
Bioassay of the pressor activity of epinephrine isolated from Ch'an Su	
(Fig. 1)	18
Action of cinobufagin on the mammalian heart (Fig. 2)	25
Electrocardiographic changes caused by cinobufagin (Fig. 3)	27
Action of cinobufotenine on the frog's heart (Fig. 4)	41
— of cinobufotenine on the mammalian heart (Fig. 5)	42
Comparison of the pressor action of cinobufotenine with that of epinephrine	
(Fig. 6)	44
The relation of acquired morphine tolerance to the adrenal cortex (Fig. 1)	55
relation of acquired morphine tolerance to the adrenal cortex (Fig 2)	57
—— relation of acquired morphine tolerance to the adrenal cortex (Fig. 3)	59
— effects of extracts on the ovaries of immature rat (twenty-six days old).	
× 13.5 (Fig. 1)	118
- effect of pituitary hebin (sheep) on the ovaries and uterus of the hypo-	
physectomized rat. Ovaries, × 15; uteri, × 31 (Fig. 2)	119
Effect of ultra-violet rays on epinephrine and related products (Fig. 1)	126
	127
, , , , , , , , , , , , , , , , , , , ,	128
Studies on calcium. V. Blood and urine levels of calcium after peroral and	
• • • • • • • • • • • • • • • • • • • •	140
on calcium. V. Blood urine and levels of calcium after peroral and deep	
, , , , , , , , , , , , , , , , , , , ,	141
on calcium. V. Blood and urine levels of calcium after peroral and deep	140
• • • • • • • • • • • • • • • • • • • •	142
The state of the s	149
muscular administration of calcium gluconate in man (Fig. 4)	143
	144
Two simultaneous experiments showing the effect of cocaine-HCl (40 mgm.	177
per kilogram injected at arrows) on the rectal temperature (small dots)	
	151
Effects of cocaine-HCl (40 mgm. per kilogram) on total solids of liver in series	
	155
, , ,	165
	169
	173

Rate of action of veratrine on after-potential, irritability, conduction rate	
and spike height (Fig. 4)	175
Effect of veratrinization on the relatively refractory period (Fig. 5)	178
After-potential increased by protoveratrine, reversibly decreased by cold or	-•
stimulation (Fig. 6)	180
Showing the effect of 0.05 mgm. rotenone per kilogram by way of the femoral	100
	004
vein, and 0.5 mgm. by way of one of the mesenteric veins (Fig. 1)	204
— the effect of 0.05 mgm. rotenone per kilogram by way of the femoral vein	
(Fig. 2)	
The action of ephedrine in avertin anesthesia (Fig. 1)	
— action of ephedrine in avertin anesthesia (Fig. 2)	
action of ephedrine in avertin anesthesia (Fig. 3)	215
— action of ephedrine in avertin anesthesia (Fig. 4)	216
— effect of avertin upon the circulation (Fig. 1)	227
— effect of avertin upon the circulation (Fig. 2)	227
— effect of avertin upon the circulation (Fig. 3)	
Ergotoxine miosis (Fig. 1)	
— miosis (Fig. 2).	
- miosis (Fig. 3).	
— miosis (Fig. 4)	
Effect of large doses of histamine on the submaxillary gland of a dog (Fig. 1)	267
Parallel registration of histamine action on the submaxillary and parotid	
glands of a dog (Fig. 2)	272
The influence of sodium barbital upon the reactions of normal rabbits to	
successive doses of insulin (Fig. 1)	279
—— influence of sodium barbital upon the reactions of normal rabbits to suc-	
cessive doses of insulin (Fig. 2)	282
Effect of blood of hypophysectomized dogs on blood sugar of rabbits	
(Fig. 1)	290
— of blood of normal dogs on blood sugar of rabbits (Fig. 2)	291
Composite results of experiments with blood of hypophysectomized and nor-	
	291
Quantitative studies on the absorption and excretion of hexylresorcinol and	
	331
Individual changes as the result of continued drinking of alcohol in pigeons of	001
	341
	941
	0.40
group II (Fig. 2)	342
Per cent changes in body weight and daily absolute alcohol and food con-	- 4 -
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	346
	402
	404
· · · · · · · · · · · · · · · · · · ·	<b>43</b> 8
Atropine antagonism (Fig. 2)	
Action on small intestine in situ (Fig. 3)	
— on isolated Esculenta heart (Fig. 4)	<b>44</b> 0
on blood pressure (Fig. 5)	<b>44</b> 0
— on blood pressure (Fig. 6)	

Graphs indicating the difference in the depth of the anesthesia as shown by the difference in the strength of the adequate stimulus, measured by the	
difference in the distance of the secondary from the primary coil of the inductorium before anesthesia and at the time of its greatest intensity	
(Figs. 1, 2 and 3)	
Effect of Na amytal (20 per cent m.L.D.) on depth of anesthesia (Fig. 1)	451
Graphs 10 to 12, effect of 10 per cent; graphs 13 to 15, effect of 15 per cent of	
M.L.D. of dial on depth of anesthesia (Fig. 2)	<b>4</b> 52
— 16 to 18, effect of 17 per cent; graphs 19 to 21, effect of 22 per cent of	
M.L.D. of iso propyl allyl barbituric acid on depth of anesthesia	
(Fig. 3)	
Effect of 16 per cent of M.L.D. of avertin on depth of anesthesia (Fig. 4)  of 20 per cent of M.L.D. of chloral on depth of anesthesia (Fig. 5)	
Additive anesthetic effects on anesthesia with ethylene and oxygen	303
(Fig. 6)	455
Apparatus controlling strength and rate of stimulation (Fig. 1)	
Crest wave uniformity in the fatigue curves of normal and caffeinized gastroc-	100
nemic muscles of the same frog (Fig. 2)	459
nemic muscles of the same frog (Fig. 3)	460
Action of the "hypotensive unit" (Fig. 1)	
The prolonged hypotension following repeated small doses of pancreatic ex-	
tract (Fig. 2)	<b>46</b> 8
Perfusion of hind leg of rabbit with pancreatic extract, dilution 1:2800	
(Fig. 3)	<b>46</b> 8
Electrocardiographic tracing made on a patient with hypertension during and	
following the intravenous injection of pancreatic extract. Lead 2 only	
(Fig. 4)	<b>46</b> 8
Effect of pancreatic extract in a dilution of 1:2800 on the coronary flow	400
(Fig. 5)	469
The effect of theophyllin-ethylene-diamine in a dilution of 1:23,000 (Fig. 6)	
- effect of histamine in a dilution of 1:10,000 (Fig. 7)	
effect of acetylcholine in a dilution of 1:55,000 (Fig. 8) effect of "circulatory hormone" in a dilution of 1:2800 (Fig. 9)	470
— effect of "circulatory hormone" in a dilution of 1:2800 (Fig. 9) — effect of "circulatory hormone" (first arrow) and untreated urine (third	4/0
arrow, in dilutions of 1:2800 and 1:50 respectively (Fig. 10)	470
— height of the column represents in each instance the average of 5 to 10	
determinations made on fresh hearts (Fig. 11)	471
Abolition of pressor response to adrenalin by pancreatic extract (Fig. 12)	
Effect of ephedrine on the stomach (Fig. 1)	
— of ephedrine on the small intestine (Fig. 2)	
of small doses of ephedrine on the small intestine (Fig. 3)	482
of ephedrine on contractions of the alimentary canal in unanesthetized	
dogs (Fig. 4)	
— of ephedrine on the colon (Fig. 5)	
Behavior of papain in the peritoneal cavity (Fig. 1)	489
— of papain in the peritoneal cavity (Fig. 2)	490
— of papain in the peritoneal cavity (Fig. 3)	491

Experiment 18. Showing three stimulations under amytal anesthesia	
(Fig. 1)	
25. Depression of the effect of parasympathetic and sympathetic stimu-	
lation on the salivary secretion (Fig. 2)	
—— 16. Fall of blood pressure and inhibition of the blood flow through the	
submaxillary gland after intravenous injection of amytal (Fig. 3A)	
—— 16 (continued). Showing two phases in the secretion and blood flow	
after chords stimulation (Fig. 3B)	
Relaxation of the jejunum due to pilocarpine after contraction by histamine;	
pilocarpine added at arrow (Fig. 1A)	
Addition of histamin after relaxation has no effect (Fig. 1B)	
Contraction of the jejunum by histamin, relaxation by pilocarpine (Figs. 2A	
and 2B)	
Variation in susceptibility of mice towards narcotic and toxic effects of mag-	
nesium sulphate (Fig. 1)	
Absorption of calcium salts in different doses, as measured by neutralization	
of the narcotic effect of magnesium (Fig. 2)	
— of calcium salts at different times after their administration (Fig. 3)	
Effect of papaverine on the stomach (Fig. 1)	
— of papaverine on the intestine (Fig. 2)	
— of papaverine and morphine on the intestine (Fig. 3)	557
— of papaverine on the colon (Fig. 4)	559
The action of blister fluid on the isolated rat's uterus (Fig. 1)	565
action of blister fluid on the isolated rat's uterus (Fig. 2)	
action of blister fluid on the isolated rat's uterus (Fig. 3)	
Intestinal loop of cat—very slowly moving drum (Fig. 1)	588
Turtle heart (Fig. 2)	
Perfusion of blood vessels of frog, Rana clamata (Fig. 3)	
Blood pressure and respiration curve of cat under ether anesthesia (Fig. 4)	590
Dog, 5.46 kgm. Ether anesthesia. Showing effect of no. 7 (merodicein) and	
mercuric iodide on blood pressure and circulation (Fig. 5)	591
, 7.9 kgm. Effect of 300 mgm. of no. 7 (merodicein) on blood pressure	
and respiration (Fig. 6)	
Strip of jejunum of cat suspended in 50 cc. of Locke solution (Fig. 7)	594
Horn of virgin guinea pig's uterus suspended in 50 cc. of oxygenated Locke solution at 38°C. (Fig. 8)	EOI
Uterus strip of pregnant cat in 50 cc. of Locke solution (Fig. 9)	
Cat's bladder. Muscle strip from fundus suspended in 50 cc. of oxygenated	980
Locke solution at 38°C. (Fig. 10)	507
Experiment on vas deferens of Didelphys virginiana (opossum) (Fig. 11)	598
— on vas deferens of rat (Fig. 12)	
— 370 (Fig. 1)	627
— 379 (Fig. 2)	
398 (Fig. 3)	628
—— 409 (Fig. 4)	628
415 (Fig. 5)	629
—— 418 (Fig. 6)	629

ILLUSTRATIONS	xi
Experiment 460 (Fig. 7)	632
—— 473 (Fig. 8)	
455 (Fig. 9)	633
—— 468 (Fig. 10)	
Effects of graded doses of avertin on rates of respiration in normal and ne-	
phritic rabbits (Fig. 1)	
Comparison of the hypnotic, anesthetic and lethal doses of avertin in normal	
and nephritic rabbits (Fig. 2)	
Isolated esophagus of Xenopus (Fig. 1)	
— stomach of Xenopus (Fig. 2)	
— stomach (Fig. 3)	
— ileum (upper tracing) and duodenum (lower tracing) of Xenopus	1
(Fig. 4)	
— ileum of Xenopus (Fig. 5)	
rectum of Xenopus (Fig. 6)	
—— ileum of Xenopus (Fig. 7)	
— duodenum of Xenopus (Fig. 8)	
small intestine (intermediate between ileum and jejunum) of Xenopus	
(Fig. 9)	
Photographs showing an adult and a baby monkey hanging under the influ-	
ence of bulbocapnine (Fig. 1)	
Graphs of the hanging response of the right and left hands of an adult mon-	
key under the influence of bulbocapnine (25 mgm.) (Fig. 2A)	
- for the same monkey, but with a larger dose of bulbocapnine (a total of	
78 mgm.) (Fig. 2B)	
— for the same monkey, but with a still larger dose (100 mgm.) (Fig. 2C)	682
- of the hanging response obtained for a monkey hanging by the right and	
left hands alternately, and by both hands together (Fig. 3)	
Perfusion of the heart of Xenopus, showing systolic standstill of the ventricle	
produced by strophanthin (1:100,000) in fifteen minutes (Fig. 1)	700
- of the heart of Bufo, showing systolic standstill of the ventricle pro-	
duced by strophanthin (1:300) after perfusing for six minutes (Fig. 2)	702
of Bufo heart (Fig. 3)	702