

Contents

PART I

Introductory Considerations

1. Introduction	3
Definitions	3
History	4
Applied Pharmacology	5
General Action of Drugs	6
Conditions Modifying the Effects of Drugs	13
Adverse Reactions to Drugs	21
The Dose-Effect Relationship of Drugs	26
Termination of Drug Action	27
Methods of Administration	29
Chemical Character of Drugs	33
The Pharmacopias and other Official Publications	36
Official Preparations	37
Biological Assay	39
Toxicology	40

PART II

Drugs Acting Primarily on the Central Nervous System

2. General Anesthetics	45
History	45
Theories of Anesthesia	46
Absorption and Excretion	47
Stages of Anesthesia	48
Action	52
Complications of Anesthesia	60
Volatile and Gaseous Anesthetics	61
Intravenous Anesthesia	69
Combined Anesthesia	73
Therapeutic Use	73
3. The Aliphatic Alcohols	78
Ethyl Alcohol	78
Methyl Alcohol	91
Other Aliphatic Alcohols	92
Glycols and Glycerol	92
4. Analgesics: The Opium Alkaloids and Other Addicting Narcotic Drugs	96
Analgesia	96
The Opium Alkaloids	99
Derivatives of the Opium Alkaloids	114
Synthetic Addicting Analgesics	117
Narcotic Antagonists	122
Antitussives	123
Antidiarrheal Agents	125

5. Antipyretic, Antirheumatic and other Non-Narcotic Analgesics	129
Fever and Antipyresis	129
Acetanilid and Para-Aminophenol Derivatives	130
Antipyrine and other Pyrazolone Derivatives	133
Salicylates	136
Miscellaneous Analgesics	145
Uricosuric and other Agents Used in Gout	149
6. Hypnotics and Sedatives	159
Mechanism of Sleep	159
Barbituric Acid Derivatives	160
The Bromides	168
Aliphatic Aldehyde Derivatives	171
Derivatives of Glutacimide	174
Other Non-Barbiturate Hypnotics	175
7. Anticonvulsants or Antiepileptics	180
Convulsive Disorders	180
Hydantoin Derivatives	182
Oxazolidine Derivatives	185
Succinimide Derivatives	186
Phenobarbital and Related Drugs	187
Miscellaneous Anticonvulsants	188
8. Stimulants of the Central Nervous System	192
Convulsants	193
Analeptics and Respiratory Stimulants	196
Caffeine, Theobromine and Theophylline	199
Other Central Nervous System Stimulants	205
9. Psychotomimetic and Psychotherapeutic Drugs	209
Transmission of Nervous Impulses in the Central Nervous System	210
Serotonin	211
Psychotomimetic and Hallucinogenic Drugs	214
Major Tranquilizing Drugs	219
Minor Tranquilizers	232
Antiemetic and Antipruritic Drugs	237
Antidepressants and Psychomotor Stimulants	239

PART III

Drugs Simulating or Acting on the Peripheral Nervous System

10. Pharmacology of the Autonomic Nervous System	253
Anatomic Considerations	253
Chemical Mediators of Autonomic Activity	256

x CONTENTS

Autonomic Functions	260	Nitrites, Nitrates and Nitrous Esters	449
Regulation of Autonomic Function	266	Drugs Used in Hypertension	455
11. The Adrenergic (Sympathomimetic) Drugs	269	Rauwolfa Alkaloids	459
The Catecholamines	270	Diuretics	460
Other Sympathomimetic Drugs	281	Ganglionic Blocking Agents	461
12. Adrenergic Blocking Agents	298	Hydralazine	462
Ergot and its Alkaloids	298	Sympathetic Blocking Agents	463
α -Adrenergic Blocking Agents	306	Enzyme Inhibitors	465
β -Adrenergic Blocking Agents	311	Veratrum Alkaloids	467
13. Cholinergic (Parasympathomimetic) Drugs	316	Drug Treatment of Hypertension	469
Acting on Effector Organs Innervated by Postganglionic Parasympathetic Nerves	316	Other Drugs Acting on the Vascular System	470
Acetylcholine	317	21. Drugs Acting Primarily on the Kidney: Diuretics	473
Synthetic Choline Derivatives	320	Minor Diuretics	475
Muscarine	321	Xanthine Drugs	477
Pilocarpine	324	Mercurial Diuretics	480
Cholinesterase Inhibitors	327	Carbonic Anhydrase Inhibitors	483
Synthetic Cholinergic Drugs	330	Benzothiadiazine Derivatives	485
Effect of Drugs on Intraocular Pressure	334	Other Sulfamyl Derivatives	487
14. Anticholinergic Drugs Acting on Effector Organs Innervated by Postganglionic Parasympathetic Nerves	338	Ethacrynic Acid	488
The Atropine Series	338	Aldosterone Antagonists and Related Drugs	489
Synthetic Anticholinergic Drugs	350	Other Diuretic Agents	490
15. Drugs Acting on Autonomic Ganglia	359	Therapeutic Use of the Diuretics	491
Nicotine	361	22. Drugs Acting on the Blood and Hematopoietic System	496
Tobacco	365	Blood, Its Fractions and Substitutes	496
Ganglionic Blocking Agents	367	Antianemic Agents	498
16. Neuromuscular Blocking Agents	374	Iron	501
Competitive or Non-Depolarizing Neuromuscular Blocking Agents	375	Liver and Liver Preparations	503
Depolarizing Neuromuscular Blocking Agents	380	Intrinsic Factor	505
Antagonists to Neuromuscular Block	381	Vitamin B ₁₂	505
17. Histamine and Antihistamine Compounds	384	Folic Acid	507
Histamine	384	Folinic Acid	510
Pharmacology	386	Coagulants	511
Therapeutic Use	388	Local Coagulants	512
Role in Allergy and Anaphylaxis	389	Vitamin K	512
Histamine-Antagonizing Agents	391	Other Systemic Coagulants	515
Chemistry	391	Anticoagulants	516
Therapeutic Uses	395	Heparin	516
18. Local and Regional Anesthetics	400	Synthetic Coumarin and Phenindione Derivatives	516
Local and Regional Anesthesia	400	Fibrinolytic Agents	521
Cocaine	403	23. Drugs Acting Primarily on the Gastrointestinal Tract	524
Synthetic Local Anesthetics	408	Stomachics	524
PART IV		Antacids	527
Drugs Acting Primarily on the Cardiovascular, Renal, Digestive, and Hematopoietic Systems		Cathartics	530
19. Drugs Acting Primarily on the Heart	421	PART V	
The Digitalis Series	421	Chemotherapeutic Agents	
Chemistry	423	24. Chemotherapy	545
Action	425	General Principles	546
Therapeutic Uses	431	Antiviral Drugs	549
Antiarrhythmic Drugs	440	Trypanosomacides	551
Quinidine	442	The Diamidines	553
Procainamide Hydrochloride	445	Anti-Tuberculosis Drugs	553
Lidocaine	445	Drugs Used in Urinary Tract Infections	558
Other Antiarrhythmic Drugs	446	Therapeutic Uses	561
20. Drugs Acting Primarily on the Vascular System	449	25. The Sulfonamides and Sulphones	566
		The Sulfonamides	567
		Mechanism of Action	568
		Toxicology	568

Preparations	570	The Melanocyte-Stimulating Hormones	731
Therapeutic Use	574	33. The Thyroid	735
The Sulfones	576	Hormones of the Thyroid	736
Treatment of Leprosy	576	Biogenesis	737
26. The Antibiotics	580	Action	739
The Penicillins	581	Therapeutic Use	741
The Cephalosporins	593	Antithyroidal Drugs	744
The Streptomycin Group	595	Radioiodine	747
The Tetracycline Derivatives	602	Calcitonin	748
The Macrolide Group	606	34. The Parathyroid Glands	751
Other Broad Spectrum Antibiotics	609	The Parathyroid Hormone	751
Polypeptide Antibiotics	614	Action	753
Antibiotics with Antifungal Activity	616	Therapeutic Use	755
Therapeutic Use of Antibiotics	619	35. The Adrenals	758
27. Quinine and Other Antimalarial Drugs	627	Physiology	758
Malaria	627	Chemistry	761
Quinine	629	Regulation of Adrenal Cortical Activity	762
Quinacrine (Mepacrine)	633	The Adrenal Cortical Hormones	763
Quinoline Derivatives	634	Therapeutic Use	767
Chlorophenyl Derivatives	637	Preparations and Methods of Administration	770
Trimethoprim	639	Dosage and Choice of Drugs	770
Present Day Treatment of Malaria	639	36. The Pancreas	777
28. Emetine and Other Amebacidal Drugs	643	Insulin	777
Emetine	644	Chemistry	777
Arsenical Amebacides	646	Action	779
Hydroxyquinoline Derivatives	648	Regulation of Insulin Secretion	781
Antimalarial Drugs	649	Therapeutic Use	781
Antibiotics	649	Synthetic Hypoglycemic Agents	784
Treatment of Amebiasis	650	Sulfonylurea Compounds	785
29. Anthelmintics	652	Phenformin	786
Drugs Used in Systemic Helminthiasis	652	Glucagon	787
Drugs Used in Intestinal Helminthiasis	656	Other Compounds Affecting Carbohydrate Metabolism	789
30. Antineoplastic and Immunosuppressive Drugs	665	37. The Sex Hormones	793
Hormones	666	The Gonadotropins	793
Radicactive Compounds	667	The Estrogens	796
Antimetabolites	667	Progestational Compounds	801
Alkylating Agents	670	Oral Contraceptives	804
Antibiotics	675	The Androgens	806
Miscellaneous Drugs	676	Preparations	809
Immunosuppressive Drugs	678	Therapeutic Use	810
Therapeutic Use of Antineoplastic Drugs	680		
31. Drugs Characterized Chiefly by their Local Action	685		
Surgical Antiseptics and Disinfectants	687		
Drugs Used in Diseases of the Skin	699		
Skin Irritants and Counter-Irritation	702		
Disinfectants	705		
Pesticides and Insect Repellents	707		
PART VI			
The Hormones and Drugs Affecting Endocrine Function			
32. The Pituitary Gland	717	38. The Fat-Soluble Vitamins	817
The Adenohypophysis	717	Vitamin A	819
Radioimmunoassay	719	Vitamin D	822
Growth Hormone	720	Vitamin E	825
Prolactin	722	Essential Fatty Acids	827
Corticotropin	722	39. The Water-Soluble Vitamins	830
Metyrapone	723	The Vitamin B Complex	830
The Neurohypophysis	724	Thiamine (Vitamin B ₁)	830
Action of Vasopressin	726	Riboflavin	833
Action of Oxytocin	729	Nicotinic Acid and Nicotinamide	834
Therapeutic Use	730	Pyridoxine	837

PART VII**The Vitamins**

38. The Fat-Soluble Vitamins	817
Vitamin A	819
Vitamin D	822
Vitamin E	825
Essential Fatty Acids	827
39. The Water-Soluble Vitamins	830
The Vitamin B Complex	830
Thiamine (Vitamin B ₁)	830
Riboflavin	833
Nicotinic Acid and Nicotinamide	834
Pyridoxine	837
Pantothenic Acid	840
Biotin	841
Para-aminobenzoic Acid	842
Choline, Inositol and other Lipotropic Agents	842
Ascorbic Acid	843
The Bioflavonoids	847

PART VIII**Metallic and Other Inorganic Compounds**

40. Water and Other Non-Metallic Compounds	853
Electrolyte and Water Metabolism	853
Water	855
Sodium Chloride	858
Potassium Salts	862
Lithium, Cesium and Rubidium Salts	865
Ammonium Salts	866
Caustic Alkalies	867
Salts of Alkaline Earths	869
Balanced Salt Solutions	874
Acids	874
Anions	876
Gases	884
41. The Metalloids: Arsenic, Antimony and Bismuth	894
Arsenic	894
Antimony Compounds	899
Bismuth Compounds	902
42. The Heavy Metals	905
Iron	907
Copper	911
Zinc	913
Aluminum	915
Lead	915
Silver	920

Mercury	921
Gold	925
Minor Metals	926
Radioactive Elements and Isotopes	930

PART IX**Miscellaneous Drugs**

43. Immunologic Agents	937
Vaccines	937
Toxins and Toxoids	940
Antitoxic Sera, Immune Sera and Antitoxins	941
Biologic Diagnostic Agents	942
44. Diagnostic and Other Agents of Pharmacologic Importance	947
Diagnostic Agents	947
Enzymes	949
Therapeutic Nutrients and Food Substitutes	950
Anti-cholesterolemic and Anti-lipemic Agents	952
Agents Used in Roentgenography	953
Appendix	
The Prescription	957
Medicolegal Considerations	963
Index	967

Part I

Introductory Considerations