

# CONTENTS

## PART I THE REGULATION OF THE CONSTANCY OF THE INTERNAL ENVIRONMENT

- § 1. THE CELL AND BODY FLUIDS 1
- § 2. BODY WATER AND BODY FLUID 13
- § 3. THE BLOOD 14

## PART II THE HEART AND CIRCULATION

- § 4. GENERAL CONSIDERATIONS 60
- § 5. THE CAPILLARY CIRCULATION 77
- § 6. VEINS AND VENOUS RETURN 87
- § 7. STRUCTURE AND PROPERTIES OF THE HEART 91
- § 8. MEASUREMENT OF CARDIAC OUTPUT IN MAN 106
- ✓ § 9. HEART RATE 107
- § 10. CARDIAC ELECTROPHYSIOLOGY 110
- § 11. NEURAL CONTROL OF THE CARDIOVASCULAR SYSTEM 125
- § 12. CIRCULATION THROUGH SPECIAL REGIONS 136
- § 13. HIGH BLOOD PRESSURE 156

## PART III RESPIRATION

- § 14. REGULATION OF THE BREATHING 160
- § 15. THE CARRIAGE OF OXYGEN BY THE BLOOD 171
- § 16. CARBON DIOXIDE TRANSPORT IN THE BODY 179
- § 17. THE CHEMICAL REGULATION OF RESPIRATION 184
- § 18. DYSPNOEA 209

## PART IV THE KIDNEY AND THE REGULATION OF BODY FLUIDS

- § 19. STRUCTURE AND FUNCTIONS OF THE KIDNEY 212
- § 20. REGULATION OF WATER BALANCE AND COMPOSITION OF BODY FLUIDS BY THE KIDNEY 230
- § 21. KIDNEY FUNCTION IN DISEASE 234
- § 22. EFFECTS ON BODY FLUIDS OF DERANGEMENTS OF THE ALIMENTARY CANAL 236

## PART V MUSCLE, AND THE NERVOUS SYSTEM

- § 23. SKELETAL MUSCLE 240
- ✓ § 24. STRUCTURE AND FUNCTION OF NERVOUS TISSUE 247
- § 25. REFLEX ACTION 271
- § 26. THE AFFERENT NERVOUS SYSTEM 281
- § 27. THE REGULATION OF POSTURE 296
- § 28. THE CEREBELLUM 303
- § 29. STRUCTURE OF THE CEREBRAL CORTEX 308
- § 30. GENERAL SURVEY OF VOLUNTARY MOVEMENT 315
- § 31. THE BASAL GANGLIA 318
- § 32. THE THALAMUS 320
- § 33. THE ELECTROENCEPHALOGRAM 322
- § 34. SOMATIC SENSORY CORTEX AND PARIETAL LOBE 326
- § 35. CONNEXIONS AND FUNCTIONS OF THE PREFRONTAL LOBES 329
- § 36. PHYSIOLOGY OF THE EMOTIONS 332
- § 37. REGULATION OF BODY TEMPERATURE IN MAN 334
- § 38. THE BRAIN STEM 343
- § 39. THE CEREBROSPINAL FLUID 346

## PART VI THE SPECIAL SENSES

§ 40. THE EAR	351
§ 41. THE EYE	357
§ 42. THE CHEMICAL SENSES	367
§ 43. PAIN	374

## PART VII THE AUTONOMIC NERVOUS SYSTEM

§ 44. GENERAL ARRANGEMENT AND FUNCTIONS	383
§ 45. THE ADRENAL MEDULLA	397
§ 46. PHYSIOLOGY OF MICTURITION	399

## PART VIII DIGESTION

§ 47. SECRETION OF DIGESTIVE JUICES	403
§ 48. MECHANICS OF THE ALIMENTARY CANAL	414
§ 49. THE LIVER	420

## PART IX METABOLISM

§ 50. CHEMICAL TRANSFORMATION AND ENERGY RELEASE	426
§ 51. CARBOHYDRATE METABOLISM	431
§ 52. FAT METABOLISM	440
§ 53. PROTEIN METABOLISM	446

## PART X NUTRITION

§ 54. DIETARY REQUIREMENTS	467
§ 55. THE VITAMINS	473

## PART XI ENDOCRINE GLANDS

§ 56. THE ENDOCRINE FUNCTIONS OF PANCREAS	485
§ 57. THE PITUITARY GLAND	494
§ 58. THE PINEAL GLAND	500
§ 59. THE ADRENAL CORTEX	501
§ 60. THE THYROID	510
§ 61. CALCIUM, PARATHYROIDS, CALCITONIN AND VITAMIN D	519
§ 62. THE THYMUS	526
§ 63. LOCAL HORMONES	527

## PART XII REPRODUCTION

§ 64. SEX DETERMINATION AND SEX DIFFERENTIATION	534
§ 65. THE STRUCTURE AND FUNCTIONS OF THE OVARY	535
§ 66. OESTRUS AND MENSTRUAL CYCLES	537
§ 67. CHEMISTRY OF STEROIDS. HORMONES OF OVARY AND CORPUS LUTEUM	539
§ 68. RELATIONSHIP OF HYPOTHALAMUS AND ANTERIOR PITUITARY TO OVARY	543
§ 69. PHYSIOLOGY OF PREGNANCY	545
§ 70. FOETAL CIRCULATION AND RESPIRATION	550
§ 71. THE MAMMARY GLANDS	554
§ 72. THE TESTIS	556

## INDEX