



CONTENTS

1. INTRODUCTION: The TISSUES

The Amoeba	3	Differentiation of Animal Cells	8	Cell Division (<i>mitosis</i>)	18
The Phenomena of Life	4	Epithelia	9,10	Development of Individual	19
The Paramecium	5	Connective Tissues	11-13	"Master" Tissues	20
The Cell	6	Muscular Tissues	14	"Vegetative" Tissues	21
Cell Division (<i>mitosis</i>)	7	Nervous Tissues	15-17	The Body Systems	22

2. NUTRITION and METABOLISM-The SOURCES, RELEASE and USES of ENERGY 23

Basic Elements in Protoplasm	25	Nitrogen Cycle	32	Fat Metabolism	41
Carbohydrates	26	Nutrition	33	Release of Energy	42
Fats	27	Energy-Giving Foods	34	Heat Balance	43
Proteins	28	Body-Building Foods	35	Maintenance of Body Temperature	44,45
Nucleic Acids	29	Protective Foods	36,37	Growth	46,47
Source of Energy:		Digestion	38	Energy Requirements	48,49
Photosynthesis	30	Protein Metabolism	39	Balanced Diet	50
Carbon Cycle	31	Carbohydrate Metabolism	40		

3. DIGESTIVE SYSTEM

Digestive System	52	Movements of Stomach	60	Movements of Small Intestine	51
Progress of Food along Alimentary Canal	53	Vomiting	61	Absorption in Small Intestine	69
Digestion in Mouth	54	Pancreas	62	Transport of Absorbed Foodstuffs	70
Control of Salivary Secretion	55	Pancreatic Juice	63	Large Intestine	71
Oesophagus	56	Liver and Gall Bladder	64	Movements of Large Intestine	72
Swallowing	57	Expulsion of Bile	65	Innervation of Gut Wall	73
Stomach	58	Small Intestine	66	Nervous Control of Gut Movements	74
Gastric Juice	59	Basic Pattern of Gut Wall	67		
		Intestinal Juice	68		

4. TRANSPORT SYSTEM - The HEART, BLOOD VESSELS and BODY FLUIDS: 77 HAEMOPOIETIC SYSTEM

Cardiovascular System	78	Blood Pressure	92	Water Balance	103
General Course of Circulation	79	Measurement of Arterial B.P.	93	Blood	104
Heart	80-82	Elastic Arteries	94	Blood Coagulation	105
Cardiac Cycle	83	Nervous Regulation of Muscular Arteries and Arterioles	95	Factors Required for Normal Haemopoiesis	106
Heart Sounds	84	Reflex and Chemical Regulation of Arteriolar Tone	96,97	Haemopoiesis	107
Origin and Conduction of the Heart Beat	85	Capillaries	98	Blood Groups	108,109
Electrocardiogram	86	Veins	99	Rhesus Factor	110
Nervous Regulation of Action of Heart	87	Blood Flow	100	Inheritance of Rhesus Factor	111
Cardiac Reflexes	88,89	Pulmonary Circulation	101	Lymphatic System	112
Cardiac Output	90	Distribution of Water and Electrolytes in Body Fluids	102	Spleen	113
Blood Vessels	91			Cerebrospinal Fluid	114

5. RESPIRATORY SYSTEM

Respiratory System	117	Capacity of Lungs	123	Carriage & Transfer of O ₂ , CO ₂	128,129
Air Conducting Passages	118	Composition of Respired Air	124	Nervous Control of Respiratory Movements	130
Lungs: Respiratory Surfaces	119	Movement of Respiratory Gases	125	Chemical Regul ⁿ of Respiration	131
Thorax	120	Dissociation of Oxygen from Haemoglobin	126	Voluntary and Reflex Factors in Regulation of Respiration	132
Mechanism of Breathing	121	Uptake and Release of CO ₂	127		
Artificial Respiration	122				

6. EXCRETORY SYSTEM		
Excretory System	134	"Clearance" of Inulin in Nephron.139
Kidney	135	Urea "Clearance" 140
Formation of Urine-Filtration.	136	Diodone "Clearance" 141
Formation of Urine-Concent?	137	Maintenance of Acid-Base Balance 142
Formation of Urine-Mechanism of Water Reabsorption.	138	Maintenance of Acid-Base Balance 133
7. ENDOCRINE SYSTEM		
Endocrine System.	150	Overactivity of Pituitary Basophil Cells 149
Thyroid	151	Panhypopituitarism 167
Underactivity of Thyroid	152	Posterior Pituitary 168
Overactivity of Thyroid	153	Oxytocin 169
Parathyroids	154	Antidiuretic Hormone 170
Underactivity of Parathyroids	155	Underactivity of Post. Pituitary 171
Overactivity of Parathyroids	156	Aldosterone and ADH: Maintenance of Blood Volume 172
Suprarenal Glands.	157	Pancreas: Islets of Langerhans 173
Underactivity of Suprarenal Cortex	158	Thymus 174.
8. REPRODUCTIVE SYSTEM		
Male Reproductive System.	176	Uterus 175
Testis	177	Ovary in Ordinary Adult Cycle 182
Male Secondary Sex Organs.	178	Ovary in Pregnancy 183
Puberty in Male	179	Puberty in Female 184
Female Reproductive System	180	Ovarian Hormones 185
Adult Pelvic Sex Organs in Ordinary Female Cycle	181	Uterus and Uterine Tubes 186,187
		Uterine Tubes in cycle ending in Pregnancy 188
9. "MASTER" TISSUES: CENTRAL NERVOUS SYSTEM, LOCOMOTOR SYSTEM		203
Nervous System	204	Control of Eye Movements 227
Development of Nervous System	205	Iris, Lens and Ciliary Body 228
Cerebrum	206	Action of Lens 229
Horizontal Section through Brain	207	Fundus Oculi 230
Vertical Section through Brain	208	Retina 231
Coronal Section through Brain	209	Mechanism of Vision 232,233
Cranial Nerves	210	Visual Pathways to the Brain 234
Spinal Cord	211	Stereoscopic Vision 235
Synapse	212	Light Reflex 236
Nerve Impulse	213	Ear 237
Reflex Action	214	Cochlea 238
Stretch Reflexes	215	Mechanism of Hearing 239
Spinal Reflexes	216	Auditory Pathways to Brain 240
"Edifice" of the C.N.S.	217	Special Proprioceptors 241
Reflex Action	218	Organ of Equilibrium: Mechanism of Action 242
Arrangement of Neurones	219	Vestibular Pathways to Brain 243
Sense Organs	220	General Proprioceptors 244
Smell	221	Proprioceptor Pathways to Brain 245
Taste	222	Cutaneous Sensation 246
Pathways and Centres for Taste	223	Sensory Pathways from Skin of Face 247
Eye	224	
Protection of the Eye	225	
Muscles of Eye	226	
		Pain and Temperature Pathways from Trunk and Limbs 248
		Touch and Pressure Pathways from Trunk and Limbs 249
		Sensory Cortex 250
		Motor Cortex 251
		Motor Pathways to Head and Neck 252
		Motor Pathways to Trunk and Limbs 253
		Motor Unit 254
		Final Common Pathway 255
		Extrapyramidal System 256
		Cerebellum 257,258,259
		Control of Muscle Movement 260
		Locomotor System 261
		Skeletal Muscles 262,263
		Muscular Movements 264
		Reciprocal Innervation 265
		Skeletal Muscle/Contraction 266
		Autonomic Nervous System 268,269
		Autonomic Reflex 270
		Chemical Transmission at Nerve Endings 271