

Preface to the Fifteenth Edition xvii

Preface to the First Edition xix

Acknowledgements to the Fifteenth Edition xxi

Acknowledgements to the First Edition xxiii

Part 1: The Thorax

Introduction 3

Surface anatomy and surface markings 3

The trachea 4

The pleura 4

The lungs 6

The heart 6

The thoracic cage 7

The thoracic vertebrae 8

The ribs 8

The costal cartilages 11

The sternum 11

The intercostal spaces 12

The diaphragm 14

The pleurae 19

The lower respiratory tract 20

The trachea 20

The bronchi 24

The lungs 24

The mediastinum 29

The pericardium 31

The heart 32

The superior mediastinum 45

The thymus 46

The oesophagus 46

The thoracic duct 50

The thoracic sympathetic trunk 51

On the examination of a chest radiograph 53

Radiographic appearance of the heart 54

Part 2: The Abdomen and Pelvis

Surface anatomy and surface markings 59

Vertebral levels 59

Surface markings of individual viscera 61

The anterior abdominal wall 62

Fasciae of the anterior abdominal wall 62

The muscles of the anterior abdominal wall 64

The anatomy of abdominal incisions 66

The inguinal canal 68

Peritoneal cavity 70

Intraperitoneal fossae 74

The subphrenic spaces 74

The gastrointestinal tract 75

The stomach 75

The duodenum 81

Small intestine 83

Large intestine 83

The appendix 85

The rectum 87

Arterial supply of the intestine 92

The portal system of veins 93

Lymphatic drainage of the intestine 94

The structure of the alimentary canal 95

The development of the intestine and its congenital abnormalities 95

The gastrointestinal adnexae: liver gall bladder and its ducts pancreas and spleen 98

The liver 98

The biliary system 104

The gall bladder 105

The pancreas 107

The spleen 109

The urinary tract 111

The kidneys 111

The ureter 114

The embryology and congenital abnormalities of the kidney and ureter 116

The urinary bladder 117

The urethra 120

The male genital organs 122

The prostate 122

The scrotum 125

Testis and epididymis 126

Vas deferens (ductus deferens) 130

The seminal vesicles 130

The penis 130

The bony and ligamentous pelvis 131

The os innominatum 131

The sacrum 132

The coccyx 133

The functions of the pelvis 133

Joints and ligamentous connections of the pelvis 134

Differences between the male and female pelvis 134

Obstetrical pelvic measurements 136

Variations of the pelvic shape 137

Sacral (caudal) anaesthesia 139

The muscles of the pelvic floor and perineum 139

The perineum 140

The urogenital triangle of perineum 141

The anal triangle of the perineum 143

The female genital organs 144

The vulva 144

The vagina 145

The uterus 146

The Fallopian tubes 151

The ovary 152

The endopelvic fascia and the pelvic ligaments 153

Vaginal examination 155

Embryology of the Fallopian tubes uterus and vagina 155

The posterior abdominal wall 157

The suprarenal glands 158

Abdominal aorta 158

Inferior vena cava 161

Lumbar sympathetic chain 161

Computed axial tomography 163

Part 3: The Upper Limb

Surface anatomy and surface markings of the upper limb 167

Bones and joints 167

Muscles and tendons 168

Vessels 168

Nerves 170

The bones and joints of the upper limb 172

The scapula 172

The clavicle 172

The humerus 174

The radius and ulna 176

The bones of the hand 178

The shoulder joint 180

The elbow joint 185

The wrist joint 187

The joints of the hand 188

Three important zones of the upper limb: the axilla the cubital fossa and the carpal tunnel 191

The axilla 191

The cubital fossa 192

The carpal tunnel 192

The arteries of the upper limb 194

The axillary artery 194

The brachial artery 194

The radial artery 195

The ulnar artery 195

The brachial plexus 195

The segmental cutaneous supply of the upper limb 199

The course and distribution of the principal nerves of the upper limb 199

The axillary nerve 199

The radial nerve 199

The musculocutaneous nerve 201

The ulnar nerve 201

The median nerve 201

Compartments of the upper limb 203

Compartments in the segments of the upper limb 203

Compartment syndrome 204

The female breast 204

Structure 204

Blood supply 205

Lymphatic drainage 205

Development 207

The anatomy of upper limb deformities 208

The spaces of the hand 211

The superficial pulp space of the fingers 212

The ulnar and radial bursae and the synovial tendon sheaths of the fingers 212

Part 4: The Lower Limb

Surface anatomy and surface markings of the lower limb 217

Bones and joints 217

Bursae of the lower limb 218

Mensuration in the lower limb 218

Muscles and tendons 221

Vessels 222

Nerves 224

The bones and joints of the lower limb 226

The os innominatum (os coxae hip bone) 226

The femur 226

The patella 231

The tibia 233

The fibula 235

A note on growing ends and nutrient foramina in the long bones 235

The bones of the foot 236

The hip joint 236

The knee joint 241

The tibiofibular joints 244

The ankle joint 244

The joints of the foot 247

The arches of the foot 247

The anatomy of walking 249

Three important zones of the lower limb: the femoral triangle adductor canal and popliteal fossa 250

The femoral triangle 250

The adductor canal (of Hunter) or subsartorial canal 254

The popliteal fossa 255

The arteries of the lower limb 257

Femoral artery 257

Popliteal artery 258

Posterior tibial artery 259

Anterior tibial artery 259

The veins of the lower limb 260

The course and distribution of the principal nerves of the lower limb 262

The lumbar plexus 262

The sacral plexus 264

The sciatic nerve 266

The tibial nerve 268

The common peroneal (fibular) nerve 268

Segmental cutaneous supply of the lower limb 269

Compartments of the lower limb 269

Compartments in the segments of the lower limb 271

Compartment syndrome 272

Part 5: The Head and Neck

Surface anatomy of the neck 275

Introduction 275

The fascial compartments of the neck 277

Tissue planes and fascial layers in the anterior part of the neck 277

The thyroid gland 281

The parathyroid glands 285

The palate 287

The development of the face lips and palate with special reference to their congenital deformities 287

The oral cavity tongue and floor of the mouth 290

The oral cavity 290

The tongue 290

The floor of the mouth 294

The pharynx 295

The nasopharynx 297

The oropharynx 298

The palatine tonsils 298

The laryngopharynx 300

The mechanism of deglutition 301

The larynx 303

Blood supply 305

Lymphatic drainage 305

Nerve supply 306

The salivary glands 309

The parotid gland 309

The submandibular gland 312

The sublingual gland 313

The major arteries of the head and neck 314

The common carotid arteries 314

The external carotid artery 314

The internal carotid artery 316

The subclavian arteries 318

The veins of the head and neck 321

The cerebral venous system 321

The intracranial dural venous sinuses 321

The internal jugular vein 323

The subclavian vein 325

The lymph nodes of the neck 327

The cervical sympathetic trunk 329

The branchial system and its derivatives 330

Branchial cyst and fistula 331

Surface anatomy and surface markings of the head 331

The scalp 333

The skull 335

Floor of the cranial cavity 339

Development 340

The paranasal sinuses (accessory nasal sinuses) 341

The frontal sinuses 342

The maxillary sinus (antrum of Highmore) 343

The ethmoid sinuses 344

The sphenoidal sinuses 345

The mandible 345

Development 346

The temporomandibular joint (TMJ) 346

The teeth 347

The vertebral column 348

Morphology of a typical vertebra 349

Spinal motion segment 350

The cervical vertebrae ($n = 7$) 351

The thoracic vertebrae ($n = 12$) 354

The lumbar vertebrae ($n = 5$) 354

The sacrum (comprising 5 fused vertebrae) 355

The coccyx (comprising 3 4 or 5 fused vertebrae) 355

Extensor muscles of the vertebral column 355

Part 6: The Nervous System

Introduction 361

The brain 361

The brainstem 361

The cerebellum 364

The diencephalon 366

The pituitary gland (hypophysis cerebri) 368

The cerebral hemispheres 369

The membranes of the brain and spinal cord (the meninges) 380

The ventricular system and the cerebrospinal fluid circulation 381

The spinal cord 385

Age differences 388

The membranes of the cord (the meninges) 389

The cranial nerves 392

The olfactory nerve (I) 392

The optic nerve (II) and the visual pathway 393

The oculomotor nerve (III) 395

The trochlear nerve (IV) 396

The trigeminal nerve (V) 397

The abducent nerve (VI) 402

The facial nerve (VII) 402

The auditory (vestibulocochlear) nerve (VIII) 405

The glossopharyngeal nerve (IX) 406

The vagus nerve (X) 407

The accessory nerve (XI) 408

The hypoglossal nerve (XII) 409

The special senses 410

The nose 410

The ear 412

The eye and associated structures 415

The autonomic nervous system 421

The sympathetic system 424

The sympathetic trunk 425

The parasympathetic system 428

Glossary of eponyms 431

Index 000