

# Contents

## I . Virus Diseases

<b>1 . INTRODUCTION</b> .....	<b>1</b>
Virus Groups .....	<b>2</b>
Laboratory Aids in the Diagnosis of Viral Infection .....	<b>6</b>
<b>2 . DISEASES CAUSED BY THE ARTHROPOD-BORNE VIRUSES</b> .....	<b>8</b>
Introduction .....	<b>8</b>
Dengue .....	<b>15</b>
Yellow Fever .....	<b>20</b>
Rift Valley Fever .....	<b>25</b>
Phlebotomus Fever .....	<b>25</b>
Japanese B Encephalitis .....	<b>29</b>
<b>3 . ENTEROVIRUS INFECTIONS, INCLUDING POLIOMYELITIS</b> .....	<b>30</b>
Introduction .....	<b>30</b>
Poliomyelitis .....	<b>31</b>

Coxsackie Virus Infections: Herpangina, Epidemic Pleurodynia, and Aseptic Meningitis .....	35
Introduction .....	35
Herpangina .....	36
Epidemic Pleurodynia .....	36
Aseptic Meningitis .....	37
Myocarditis and Pericarditis .....	37
The ECHO Virus Diseases: Aseptic Meningitis, Epidemic Ex- anthem, and Epidemic Infantile Diarrhea .....	38
<b>4 • OTHER VIRUS DISEASES OF SPECIAL IMPORTANCE OR INTEREST IN TROPICAL OR SUBTROPICAL AREAS .....</b>	<b>39</b>
Rabies .....	39
Mumps .....	42
Herpes Simplex .....	43
Smallpox .....	43
Trachoma .....	47
<b>Lymphogranuloma Venereum</b> .....	<b>51</b>
Infectious Hepatitis .....	54
Influenza .....	56
Adenovirus Infections: Acute Respiratory Disease, Pharyngitis and Conjunctivitis .....	58
Introduction .....	58
Acute Respiratory Disease ( <b>ARD</b> ) .....	59
<b>Pharyngitis</b> and Pharyngoconjunctival Fever .....	60
Acute Follicular Conjunctivitis .....	60
Epidemic Keratoconjunctivitis .....	60
<b>II • Rickettsial Diseases</b>	
<b>5 • INTRODUCTION .....</b>	<b>61</b>
Description of Rickettsiae .....	61
Diagnostic Features of the Rickettsial Diseases .....	64
<b>6 • EPIDEMIC TYPHUS .....</b>	<b>70</b>
Brill's Disease .....	79
<b>7 • MURINE TYPHUS .....</b>	<b>79</b>
<b>8 • AMERICAN SPOTTED FEVERS .....</b>	<b>82</b>

<i>Contents</i>	xxi
<b>9 · BELATED SPOTTED FEVERS AND RICKETTSIOSES</b> .....	88
Fièvre Boutonneuse .....	88
Siberian Tick Typhus .....	90
<b>10 · RICKETTSIALPOX</b> .....	91
<b>11 · NORTH QUEENSLAND TICK TYPHUS</b> .....	93
<b>12 · SCRUB TYPHUS</b> .....	94
<b>13 · TRENCH FEVER</b> .....	101
<b>14 · Q FEVER</b> .....	104
 <b>III · Spirochetal Diseases</b>	
<b>15 · THE RELAPSING FEVERS</b> .....	107
<b>16 · YAWS AND BEJEL</b> .....	119
Yaws .....	119
Bejel .....	126
<b>17 · PINTA</b> .....	126
<b>18 · THE LEPTOSPIRAL DISEASES</b> .....	129
Leptospiral Jaundice .....	132
Benign Leptospirosis .....	133
<b>19 · RAT-BITE FEVERS</b> .....	134
Sodoku .....	135
Haverhill Fever .....	137

## IV . Bacterial Diseases

20 . THE DIARRHEAL DISEASES—INTRODUCTION .....	139
21 . BACILLARY DYSENTERY—SHIGELLOSIS .....	146
Acute Bacillary Dysentery .....	151
Chronic Bacillary Dysentery .....	153
Prophylaxis of Bacillary Dysentery .....	154
22 . FOOD POISONING .....	155
Botulism .....	157
Staphylococcus Food Poisoning .....	158
Streptococcus Food Poisoning .....	159
Salmonella Food Poisoning .....	160
Clostridium Perfringens Food Poisoning .....	160
Diagnosis and Prophylaxis of Food Poisoning .....	161
23 . CHOLERA .....	162
24 . BRUCELLOSIS .....	168
25 . TUBERCULOSIS .....	175
26 . LEPROSY .....	182
27 . PLAGUE .....	195
28 . CUTANEOUS DIPHTHERIA .....	207
29 . TULAREMIA .....	208

## V . Mycotic Diseases

30 . INTRODUCTION .....	213
-------------------------	-----

<b>31. CUTANEOUS MYCOSES</b> .....	<b>215</b>
<i>Tinea Capitis</i> .....	217
<i>Tinea Favosa</i> .....	218
<i>Tinea Barbae</i> .....	219
Dermatophytosis .....	219
<i>Tinea Cwis</i> .....	224
<i>Tinea Circinata</i> .....	226
<i>Tinea Imbricata</i> .....	227
<i>Tinea Versicolor</i> .....	228
Otomycosis .....	229
<b>32. SYSTEMIC MYCOSES</b> .....	<b>231</b>
Actinomycosis .....	232
Maduromycosis .....	235
Nocardiosis .....	237
Cryptococcosis .....	239
Candidiasis .....	241
Blastomycosis .....	242
North American <i>Blastomycosis</i> .....	242
South American <i>Blastomycosis</i> .....	245
Coccidioidomycosis .....	246
Histoplasmosis .....	248
Sporotrichosis .....	250
Chromoblastomycosis .....	251

## VI • Protozoal Diseases

<b>33. THE INTESTINAL PROTOZOA</b> .....	<b>253</b>
<i>Entamoeba histolytica</i> .....	259
<i>Entamoeba coli</i> .....	260
<i>Endolimax nana</i> .....	281
<i>Iodamoeba bütschlii</i> .....	262
<i>Dientamoeba fragilis</i> .....	282
<i>Giardia lamblia</i> .....	264
<i>Chilomastix mesnili</i> .....	266
<i>Trichomonas hominis</i> .....	287
<i>Trichomonas tenax</i> .....	287
<i>Trichomonas vaginalis</i> .....	287
<i>Balantidium coli</i> .....	268
<i>Isospora belli</i> .....	268
<i>Isospora hominis</i> .....	289
<i>Blastocystis hominis</i> .....	270

<b>34 . AMEBIASIS AND RELATED INFECTIONS</b> .....	270
Amebiasis .....	270
Dientamoeba Diarrhea .....	292
Giardiasis .....	292
Trichomonas Vaginalis Infection .....	293
Balantidiasis .....	294
Isosporiasis .....	296
Prophylaxis Against Intestinal Protozoal Infections .....	297
<b>35 . MALARIA</b> .....	297
Blackwater Fever .....	342
<b>36 . TOXOPLASMOSIS</b> .....	345
<b>37 . INTERSTITIAL PLASMA CELL PNEUMONIA</b> .....	349
<b>38 . THE TRYPANOSOMIDAE</b> .....	350
<b>39 . LEISHMANIASIS</b> .....	354
<b>40 . KALA-AZAR</b> .....	357
<b>41 . CUTANEOUS LEISHMANIASIS</b> .....	368
<b>42 . NASO-ORAL OR MUCOCUTANEOUS LEISHMANIASIS</b> .....	371
<b>43 . AFRICAN TRYPANOSOMIASIS</b> .....	372
<b>44 . AMERICAN TRYPANOSOMIASIS</b> .....	383
Chagas' Disease .....	383
Trypanosoma Rangeli .....	391

## VII . Helminthio Diseases

<b>45 . INTRODUCTION</b> .....	393
--------------------------------	-----

<b>46 • INTESTINAL NEMATODES</b> .....	396
Morphology of the Nematodes in General .....	396
The Generalized Cycle of the Intestinal Nematodes .....	399
<b>Trichuriasis</b> .....	401
Enterobiasis .....	404
Ascariasis .....	409
Hookworm Disease .....	415
Trichostrongylosis .....	426
Strongyloidiasis .....	428
<b>47 • TISSUE INHABITING NEMATODES: THE FILARIOIDEA</b> .....	<b>431</b>
Biology of the Filarioidea .....	431
Morphology of the Filarioidea .....	432
<b>Filariasis Bancrofti</b> .....	437
Filariasis Malayi .....	451
Onchocerciasis .....	457
<b>Loiasis</b> .....	464
Filariasis <b>Ozzardi</b> .....	468
Acanthocheilonemiasis .....	469
<b>48 • TISSUE-INHABITING NEMATODES: THE DRACUNCULOIDEA</b> .....	471
Dracunculiasis .....	471
<b>49 • OTHER TISSUE-INHABITING NEMATODES</b> .....	<b>475</b>
Trichinosis .....	475
Creeping Eruption .....	481
Gnathostomiasis .....	485
Visceral Larva Migrans .....	487
<b>50 • THE SCHISTOSOMES</b> .....	490
The Generalized Cycle of the Schistosomes .....	491
Host Response .....	493
Diagnosis .....	494
Treatment .....	495
<b>Prophylaxis</b> .....	496
Schistosomiasis Haematobia .....	497
Schistosomiasis <b>Mansoni</b> .....	501
Schistosomiasis <b>Japonica</b> .....	506
Schistosome Cercarial Dermatitis .....	513
<b>51 • TREMATODES EXCLUSIVE OF SCHISTOSOMES</b> .....	516
Morphology .....	516
Generalized Cycle .....	518

Diseases Caused by Intestinal Trematodes . . . . .	521
Fasciolopsiasis . . . . .	521
Heterophyiasis . . . . .	524
<b>Metagonimiasis</b> . . . . .	525
Echinostomiasis . . . . .	526
<b>Gastrodisciasis</b> . . . . .	528
Diseases Caused by Liver Flukes . . . . .	527
Clonorchiasis . . . . .	527
Opisthorchiasis . . . . .	530
<b>Fascioliasis</b> . . . . .	531
Fascioliasis Gigantica . . . . .	534
<b>Dicrocoeliasis</b> . . . . .	534
Diseases Caused by Lung Flukes . . . . .	535
Paragonimiasis . . . . .	535
<b>52 . CESTODES</b> . . . . .	541
Introduction . . . . .	541
Biology of the <b>Cestodes</b> . . . . .	541
Morphology of the Cestodes . . . . .	541
The Generalized Cycle . . . . .	545
Diphyllobothriasis . . . . .	548
Sparganosis . . . . .	549
<b>Taeniasis Solium</b> . . . . .	551
<b>Taeniasis Saginata</b> . . . . .	556
<b>Unilocular Hydatid Disease</b> . . . . .	558
Alveolar Hydatid Disease . . . . .	563
Other Tapeworms Infecting Man . . . . .	566
Hymenolepiasis Nana . . . . .	566
<b>Hymenolepiasis Diminuta</b> . . . . .	567
Dipylidiasis . . . . .	569
<b>VIII . Nutritional Diseases</b>	
<b>53 . INTRODUCTION</b> . . . . .	571
Effect of Tropical Climate on Nutritional Requirements . .	572
Foods as Sources of Nutrients . . . . .	573
General Physiologic Effects of Inadequate Diet . . . . .	575
Tropical Malnutrition . . . . .	578
<b>54 . PELLAGRA</b> . . . . .	577
<b>55 . BERIBERI</b> . . . . .	580
<b>56 . SPRUE</b> . . . . .	584
<b>57 . KWASHIORKOR</b> . . . . .	587



<b>Contents</b>	<b>xxvii</b>
<b>58 . NUTRITIONAL EDEMA</b> .....	<b>591</b>
Epidemic Dropsy .....	<b>592</b>
<b>59 . OSTEOMALACIA</b> .....	<b>592</b>
<b>60 . VITAMIN A DEFICIENCY AND TROPICAL MACROCYTIC ANEMIA</b> ....	<b>594</b>
Vitamin A Deficiency .....	<b>594</b>
Tropical Macrocytic Anemia .....	<b>595</b>

## **IX . Miscellaneous Conditions**

<b>61 . EPIDEMIC HEMORRHAGIC FEVER</b> .....	<b>597</b>
<b>62 . BARTONELLOSIS</b> .....	<b>603</b>
<b>63 . TROPICAL ULCER</b> .....	<b>607</b>
<b>64 . TROPICAL EOSINOPHILIA</b> .....	<b>609</b>
<b>65 . DESERT SORE</b> .....	<b>610</b>
<b>66 . GRANULOMA INGUINALE</b> .....	<b>611</b>
<b>67 . EFFECTS OF HEAT</b> .....	<b>614</b>
Physiology of Heat Regulation .....	<b>614</b>
Physiologic Response to Heat .....	<b>615</b>
Effects of Heat .....	<b>615</b>
Heat Stroke .....	<b>616</b>
Heat Cramps .....	<b>618</b>
Heat Exhaustion .....	<b>618</b>
Anhidrotic Asthenia .....	<b>620</b>
Miliaria Rubra .....	<b>622</b>
Prophylaxis Against Effects of Heat .....	<b>624</b>
<b>68 . CERTAIN MEDICALLY IMPORTANT ANIMALS</b> .....	<b>624</b>
Coelenterates .....	<b>625</b>
Leeches .....	<b>626</b>
Fishes .....	<b>627</b>
Lizards .....	<b>629</b>
Snakes .....	<b>630</b>
Crocodylians .....	<b>637</b>
Bats .....	<b>638</b>

**X . Medically Important Mollusca**

<b>69 . MOLLUSKS AND DISEASE</b> .....	641
Introduction .....	641
Role of Mollusks as Direct Agents of Human Disease ....	641
Role of Mollusks as Carriers of Disease .....	642
<b>70 . STRUCTURE, CLASSIFICATION AND BIOLOGY OF MEDICALLY IM- PORTANT MOLLUSKS</b> .....	644
Class Gastropoda .....	645
Subclass Prosobranchia .....	645
Subclass Euthyneura .....	653

**XI • Medically Important Arthropods**

<b>71 . INTRODUCTION</b> .....	657
Role of Arthropods as Vectors of Disease .....	657
Role of Arthropods as Direct Agents of Human Disease or Dis- comfort .....	664
Structure, Classification and Biology of Medically Important Arthropods .....	667
Class <b>Crustacea</b> .....	668
Class <b>Arachnida</b> .....	668
Class Pentastomida (Linguatulida) .....	668
Class Chilopoda .....	670
Class Diplopoda .....	670
Class <b>Insecta</b> (Hexapoda) .....	670
<b>72 . THE CLASS ARACHNIDA</b> .....	671
The Order Scorpionida (Scorpions) .....	671
Whip Scorpions .....	671
The Order Araneida (Spiders) .....	673
Tarantula Group .....	673
Black Widow Group .....	673
Other Spiders .....	675
The Order Acarina (Ticks and Mites) .....	676
The Superfamily Ixodoidea (Ticks) .....	676
<b>Acarina</b> Other Than Ticks (Mites) .....	682

**73. THE CLASS INSECTA (HEXAPODA) . . . . . 689**

    Introduction . . . . . 689

    Order Collembola . . . . . 690

    Order Orthoptera . . . . . 692

    Order Ephemera . . . . . 693

    Order Trichoptera . . . . . 693

    Order Mallophaga . . . . . 693

    Order **Anoplura** . . . . . 694

    Order Hemiptera (True Bugs) . . . . . 697

        Family Cimicidae (Bedbugs) . . . . . 697

        Family Reduviidae (Kissing Bugs) . . . . . 699

    Order Coleoptera (Beetles) . . . . . 701

        Vesicating and Poisonous Effects . . . . . 701

**Canthariasis** . . . . . 702

        Beetles as Hosts to Helminthic Parasites . . . . . 703

        Mechanical Transmission of Microorganisms by Beetles . . . . . 703

    Order Lepidoptera (Butterflies and Moths) . . . . . 703

        Urticating Hairs . . . . . 704

        Scoleciasis . . . . . 705

        Lepidoptera as Hosts of Helminthic Parasites . . . . . 705

    Order Diptera . . . . . 705

    Order Siphonaptera (Fleas) . . . . . 705

    Order Hymenoptera . . . . . 710

        The Poisonous Effects of Stings . . . . . 711

    The Fire Ant . . . . . 714

**74. THE ORDER DIPTERA . . . . . 717**

    Suborder **Nematocera** . . . . . 717

        Family Heleidae (Ceratopogonidae) . . . . . 718

        Family **Simuliidae** . . . . . 719

        Family Psychodidae . . . . . 720

        Family Culicidae (Mosquitoes) . . . . . 722

    Suborder Brachycera . . . . . 731

        Family Tabanidae . . . . . 731

        Family **Rhagionidae** (Leptidae) . . . . . 734

        Family Stratiomyiidae . . . . . 734

    Suborder **Athericera** (Cyclorrhapha) . . . . . 734

        Biting Flies of the Athericera . . . . . 734

        Family Muscidae . . . . . 743

        Family **Syrphidae** (Hover-flies) . . . . . 747

        Family Drosophilidae . . . . . 747

        Family Piophilidae . . . . . 747

        Family Chloropidae (= Oscinidae) . . . . . 748

        Family Gasterophilidae (**Botflies**, in part) . . . . . 749

        Family **Oestridae** (**Botflies**, concluded) . . . . . 750

        Family Calliphoridae (Blowflies and Others) . . . . . 753

        Family Sarcophagidae (So-called Flesh Flies) . . . . . 757

<b>75 · CONTROL OF ARTHROPODS OF MEDICAL IMPORTANCE</b> .....	758
Mechanical and Cultural Control .....	758
Biologic Control .....	758
Chemical, Control .....	759
<b>Anopheline</b> Control .....	762
Culicine Control .....	765
Fly Control .....	768
Control of Other Arthropods .....	771
Repellents and <b>Acaricides</b> .....	771
<b>76 · TOXICOLOGY OF PESTICIDES</b> .....	781
Health <b>Hazards</b> .....	781
Pesticide Classification .....	782
Laboratory Aids in Pesticide Poisoning .....	789
<b>XII . Some Laboratory Diagnostic Methods</b>	
<b>77 · METHODS AND PROCEDURES</b> .....	791
General Procedures .....	793
Methods of Examining Smears, Blood and Other Tissues ..	796
Method for Obtaining <b>and</b> Examining Duodenal Drainage Fluid for Strongyloidiasis and Other Parasitic Infections	803
Methods of Examining Feces for Protozoa and Helminths	805
Methods of Examining Urine .....	818
Methods of Examining Sputum .....	818
Culture Methods .....	819
Serologic and Immunologic Methods .....	827
Miscellaneous .....	837
<b>INDEX</b> .....	841