

TABLE OF CONTENTS

CHAPTER I

The Sputum

	PAGE
I. GENERAL CONSIDERATIONS	1
II. PHYSICAL AND CHEMICAL CHARACTERISTICS	2
Amount	2
Consistency	2
Reaction	3
Color	3
Odor	4
Character	4
Chemistry	5
III. MACROSCOPIC EXAMINATION	6
Cheesy masses	6
Dittrich's plugs	6
Curschmann's spirals	7
Fibrinous casts	8
Concretions	8
Bronchioliths	8
Pneumoliths	8
Echinococcus membranes	9
Foreign bodies	9
IV. MICROSCOPIC EXAMINATION	9
Pus-cells	10
Red blood-cells	11
Epithelial cells	11
Elastic tissue	12
Crystals	13
Bacteria	14
Saprophytes	14
Pathogenic types	17
Tubercle bacillus	17
Lepra bacillus	24
Smegma bacillus	24
Timothy bacillus	24
Pneumococcus	25
Friedländer's bacillus	25
Influenza bacillus	26
Bacillus pertussis	26
Bacillus typhosus	26
Staphylococcus and streptococcus pyogenes	26
Bacillus pestis	27
Bacillus anthracis	27
Bacillus mallei	27
Actinomyces hominis	27



	PAGE
Animal parasites	28
Amebæ	28
Flagellates	28
Cestodes	29
Trematodes	29
V. THE SPUTA IN DISEASE	30
Pulmonary tuberculosis	30
Croupous pneumonia	31
Broncho-pneumonia	31
Acute bronchitis	31
Chronic bronchitis	32
Simple type	32
Putrid type	32
Fibrinous type	32
Bronchial asthma	33
Influenza	33
Gangrene of the lung	33
Abscess of the lung	33
Perforating empyema	34
Pneumoconioses	34

CHAPTER II

Oral, Nasal, Aural and Conjunctival Secretions

I. ORAL SECRETION	35
General considerations	35
Microscopic examination	36
Pathologic changes	37
Pharyngomycosis leptothrica	38
Diphtheria	38
Vincent's angina	40
Streptococcal sore throat	40
Gonorrhœal stomatitis	41
Thrush	41
Oral endamebiasis	42
II. NASAL SECRETION	44
General considerations	44
Pathologic changes	44
Rhinitis	45
Hay fever	45
Meningitis	45
III. AURAL SECRETION	46
General considerations	46
Pathologic changes	46
IV. CONJUNCTIVAL SECRETIONS	47
General considerations	47
Pathologic changes	47
Diphtheritic conjunctivitis	47
Infectious conjunctivitis	47
Gonorrhœal conjunctivitis	48
Trachoma	48
Vernal conjunctivitis	49

CHAPTER III

Gastric Contents

	PAGE
I. GENERAL CONSIDERATIONS	50
II. METHODS OF OBTAINING GASTRIC CONTENTS	52
Stomach-tube	52
Test meals	54
Ewald meal	54
Boas meal	55
Riegel meal	55
Fischer meal	55
Salzen meal	56
Sahli meal	56
III. MACROSCOPIC EXAMINATION	57
Amount	57
Color	58
Odor	59
Consistency	59
Contents from fasting stomach	60
Vomitus	60
Contents after test meals	61
IV. MICROSCOPIC EXAMINATION	62
General	62
Food remnants	62
Boas-Oppler bacillus	62
Sarcinae ventriculi	63
Protozoa	63
Tissue fragments	63
Crystals	63
V. CHEMICAL EXAMINATION	63
General	64
Total acidity	64
Free hydrochloric acid	65
Qualitative tests	66
Töpfer's test	66
Günzburg's test	66
Boas' test	67
Tropeolin test	67
Quantitative tests	67
Mintz's method	68
Töpfer's method	68
Amount of free hydrochloric acid	69
Euchlorhydria	70
Hypochlorhydria	70
Ana-chlorhydria	70
Hyperchlorhydria	71
Combined hydrochloric acid	71
Method of Martius and Lütke	71
Method of Töpfer	72
Hydrochloric acid deficit	73
Organic acids	73
Total organic acids	73
Lactic acid	74
Uffelmann's test	75

TABLE OF CONTENTS

	PAGE
Kelling's test	75
Strauss' method	75
Butyric acid	76
Acetic acid	77
Gastric ferment	77
Pepsin	77
Qualitative methods	78
Quantitative examination	79
Hammerschlag's method	79
Mett's method	79
Method of Thomas and Weber	80
Chymosin	81
Leo's method	81
Riegel's method	81
Lipase	82
Products of protein digestion	82
Products of carbohydrate digestion	82
Blood	83
Gases	83
Function of the stomach and contents	84
VI. MOTILITY OF THE STOMACH	84
Leube's method	85
Boas' method	85
Method of Ewald and Sievers	85
Winterntitz' test	86
VII. ABSORPTIVE POWER OF THE STOMACH	86
Potassium iodide test	86
VIII. INDIRECT EXAMINATION OF THE STOMACH CONTENTS	87
Günzburg's method	87
Sahli's desmoid reaction	87
IX. GASTRIC JUICE IN DISEASE	88
Hyperchlörhydria	88
Hypersecretion	89
Achyilia gastrica	89
Acute gastritis	90
Chronic gastritis	90
Nervous dyspepsia	90
Ulcer of the stomach	91
Carcinoma of the stomach	91
Salomon's test	93
Neubauer and Fischer's test	93
Wolff and Junghans' test	95

CHAPTER IV**The Feces**

I. GENERAL CONSIDERATIONS	99
Normal feces	99
Diet of Schmidt and Strasburger	100
Diet of Folin	101
Obtaining intestinal juice	101
Functions of the intestinal juice	102
Estimation of intestinal digestion	103

	PAGE
II. MACROSCOPIC EXAMINATION	103
Method	103
Amount	103
Consistency and form	104
Odor	105
Color	106
Blood	106
Mucus	108
Pus	111
Food remnants	113
Protein residues	114
Fat residues	115
Carbohydrate residues	116
Biliary constituents	117
Intestinal sand and concretions	118
Tissue fragments	118
III. MICROSCOPIC EXAMINATION	119
Technic	119
Morphological elements	119
Crystals	120
IV. CHEMICAL EXAMINATION	121
Reaction	121
Total solids	121
Total nitrogen	122
Fat	123
Carbohydrates	123
Phenoltetrachlorphthalein test	125
V. BACTERIOLOGY OF THE FECES	128
Technic	128
Cholera spirillum	129
Typhoid bacillus	130
Method of Drigalski and Conradi	130
Method of Kendall and Day	131
Bacillus of Dysentery	132
Tubercle bacillus	132
VI. PARASITOLOGY OF THE FECES	133
Technic	133
Protozoa	134
Rhizopoda	134
Amebina	134
Ameba coli	134
Entameeba coli	137
Sporozoa	137
Coccidium hominis	137
Flagellata	137
Trichomonas intestinalis	137
Cercomonas hominis	138
Megastoma entericum	138
Infusoria	138
Balantidium coli	138
Entozoa	139
Platodes	139
Cestodes	139
Tæniidæ	140

	PAGE
<i>Tænia solium</i>	140
<i>Tænia saginata</i>	141
<i>Tænia cucumberina</i>	141
<i>Tænia nana</i>	142
<i>Tænia diminuta</i>	142
<i>Tænia echinococcus</i>	143
<i>Bothriocephaloidea</i>	144
<i>Bothriocephalus latus</i>	144
<i>Dibothriocephalus cordatus</i>	144
<i>Bothriocephalus</i> sp. Ijima et Kurimoto	145
<i>Trematodes</i>	145
<i>Nematodes</i>	145
<i>Ascaridæ</i>	145
<i>Ascaris lumbricoides</i>	145
<i>Ascaris mystax</i>	146
<i>Oxyuris vermicularis</i>	147
<i>Angiostomidae</i>	147
<i>Strongyloides intestinalis</i>	147
<i>Trichotrichelidae</i>	149
<i>Trichiurus trichiura</i>	149
<i>Trichinella spiralis</i>	149
<i>Strongylidae</i>	151
<i>Uncinaria duodenalis</i>	151
<i>Uncinaria Americana</i>	152
<i>Pseudo-parasites</i>	153

CHAPTER V

Parasites

I. GENERAL CONSIDERATIONS	156
II. TREMATODES	156
<i>Fasciolidae</i>	157
<i>Fasciola hepatica</i>	157
<i>Fasciolopsis Buski</i>	158
<i>Opisthorchis felineus</i>	159
<i>Opisthorchis sinensis</i>	159
III. NEMATODES	160
<i>Eustrongylus gigas</i>	160
IV. PARASITES OF THE SKIN	161
<i>Arthropoda</i>	161
<i>Arachnoidea</i>	162
<i>Sarcoptes scabiei</i>	162
<i>Demodex folliculorum</i>	162
<i>Leptus autumnalis</i>	162
<i>Insecta</i>	163
<i>Hemiptera</i>	163
<i>Pediculus capitis</i>	163
<i>Pediculus vestimenti</i>	163
<i>Pediculus pubis</i>	163
<i>Cimex lectularius</i>	164
<i>Diptera</i>	165
<i>Pulex irritans</i>	165
<i>Pulex penetrans</i>	165

	PAGE
Vegetable Parasites	165
Achorion Schonleinii	165
Trichophyton megalosporon endothrix	166
Microsporon Audouini	167
Microsporon furfur	167
Microsporon minutissimum	169
Blastomycetes	169
Sporothrix Schenckii	171
Negri Bodies	172

CHAPTER VI

The Urine

I. GENERAL CONSIDERATIONS	175
Collection and preservation of the urine	176
II. PHYSICAL PROPERTIES	177
Quantity	177
Polyuria	178
Oliguria	179
Anuria	180
Appearance	180
Color	181
Odor	183
Reaction	184
Folin's method for total acidity	185
Free mineral and organic acidity	185
Specific gravity	187
Technic	188
Rough estimate of total solids	189
Optical activity	190
III. CHEMICAL PROPERTIES	190
Normal composition	190
Total solids and total ash	192
Inorganic constituents	192
Chlorids	192
Estimation of the chlorids	195
Quantitative determination	195
Volhard's method	195
Purdy's centrifugal method	195
Phosphates	198
Estimation of phosphates	202
Quantitative determination	202
Uranium method	202
Total phosphoric acid	205
Purdy's centrifugal method	205
Sulphur compounds	206
Preformed sulphates	206
Ethereal sulphates	207
Neutral sulphur	208
Estimation of total sulphur	209
Folin's method	209
Determination of total sulphates	210
Folin's method	210

TABLE OF CONTENTS

	PAGE
Determination of inorganic sulphates	210
Purdy's centrifugal method	210
Carbonates	211
Sodium and potassium	211
Calcium and magnesium	211
Iron	213
Organic constituents	213
Nitrogenous bodies	213
Total nitrogen	213
Kjeldahl's method	217
Urea	219
Determination of urea	221
Knop-Hüfner method	222
Doremus ureometer	222
Folin's method	223
Mörner-Sjöqvist method	225
Urease method	225
Ammonia	227
Quantitative determination	228
Method of Schloising	229
Folin's method	230
Formalin method	231
Uric acid	232
Quantitative determination	235
Folin's method	235
Salkowski-Ludwig method	236
Method of Rudisch and Kleeberg	237
Ruhemann's method	239
Purin bases	240
Creatinin	241
Qualitative tests	243
Weyl's test	243
Jaffé's test	243
Quantitative determination	243
Folin's methods	243
Undetermined nitrogen	246
Amino acids	246
Hippuric acid	248
Oxyproteic and aloxyproteic acids	248
Allantoin	248
Fatty acids	249
Oxalic acid	250
Quantitative determination	251
Baldwin's method	251
Ferments	251
Pepsin	251
Diastase	251
Lipase	252
Mucin-like bodies	252
Mucin	252
Nucleo-albumin	252
Pigments and chromogens	254
Urochrome	254
Uroerythrin	254

	PAGE
Urobilin	255
Indican	256
Tests for indican	257
Jaffé's test	257
Obermayer's test	257
Rosenbach's test	258
Quantitative determination	259
Wang's method	259
Folin's method	260
Uroroseinogen	260
Abnormal Composition	260
Proteins	260
Serum-albumin	261
Albuminuria	261
Functional	261
Febrile	264
Traumatic	265
Hematogenous	265
Toxic	265
Neurotic	265
With definite renal lesions	265
Qualitative tests	266
Heat and acid test	267
Heller's nitric acid test	268
Ferrocyanide test	271
Sulpho-salicylic acid test	271
Spiegler's test	271
Quantitative methods	272
Scherer's method	272
Esbach's method	272
Method of Tsuchiya	273
Purdy's centrifugal method	274
Removal of albumin	274
Serum-globulin	274
Qualitative tests	275
Quantitative method	276
Proteoses	276
Primary proteoses	276
Bence-Jones' protein	276
Secondary proteoses	278
Tests	279
Bang's method	279
Clinical significance	279
Peptone	281
Hemoglobin	281
Heller's test	282
Donogany's test	282
Fibrin	283
Carbohydrates	283
Glucose	284
Glycosuria	284
Qualitative tests	288
Trommer's test	288

	PAGE
Benedict's test	290
Fehling's test	291
Haines' test	291
Almén-Nylander's test	292
Fermentation test	293
Phenyl-hydrazin test	294
Quantitative tests	295
Fehling's method	295
Bang's method	296
Purdy's method	298
Haines' method	299
Polariscopic method	300
Fermentation method	303
Roberts' method	304
Levulose	305
Levulosuria	305
Seliwanoff's test	306
Phenyl-methyl-hydrazin test	306
Pentose	308
Pentosuria	308
Qualitative tests	309
Tollen's reaction	309
Orcin test	310
Quantitative test	310
Diphenyl-hydrazin method	311
Cammidge's reaction	311
Lactose	312
Lactosuria	312
Rubner's test	313
Maltose	313
Maltosuria	313
Glycuronic acid	314
Neuberg's quantitative method	316
Acetone bodies	317
Acetone	320
Qualitative tests	320
Legal's test	320
Lieben's test	321
Gunning's test	321
Frommer's test	321
Quantitative methods	322
Huppert-Messinger method	322
Folin's method	323
Diacetic acid	344
Qualitative tests	324
Gerhardt's test	324
Arnold's test	325
Lipliawsky's test	325
β -oxybutyric acid	325
Quantitative determination	326
Black's method	326
Shaffer's method	327
Abnormal pigments	328
Blood pigments	328

	PAGE
Hemoglobin	328
Hematoporphyrin	328
Biliary pigments	329
Qualitative tests	329
Smith's test	330
Gmelin's test	330
Rosenbach's test	330
Nakayama's test	330
Hammarsten's test	331
Bile acids	331
Hay's test	331
Oliver's test	332
Melanin	332
Phenol derivatives	332
Alkapton	333
Ehrlich's diazo reaction	334
Russo's reaction	335
Dimethyl-amino-benzaldehyd reaction	336
IV. MICROSCOPIC EXAMINATION	336
Unorganized sediments	338
Those appearing in acid urine	338
Uric acid	338
Sodium acid urate	339
Potassium acid urate	340
Xanthin	341
Calcium oxalate	341
Cystin	342
Cystinuria	342
Leucin	343
Tyrosin	344
Calcium sulphate	345
Bilirubin	345
Hippuric acid	345
Neutral calcium phosphate	346
Fat	346
Chyluria	346
Those appearing in alkaline urine	347
Ammonium urate	347
Calcium tri-phosphate	347
Magnesium phosphate	348
Magnesium-ammonium phosphate	348
Calcium carbonate	349
Organized sediments	349
Mucoid material	349
Epithelial cells	349
Pus-cells	351
Pyuria	351
Vitali's test	353
Dönne's test	354
Enumeration of pus-cells	354
Red blood-cells	354
Hematuria	354
Casts	356
True casts	356

	PAGE
Hyaline casts	356
Granular casts	357
Waxy casts	358
Fibrinous casts	359
Epithelial casts	359
Fatty casts	359
Blood-casts	359
Pus-casts	359
	360
Pseudo-casts	361
Cylindruria	361
Spermatozoa	363
Tissue fragments	363
Bacteria	363
Bacilluria	366
Parasites	366
V. CALCULI	367
Heller's table for analysis	368
Uric acid calculi	368
Calcium, oxalate calculi	368
Phosphatic calculi	368
Calcium carbonate calculi	370
Cystin calculi	370
Xanthin calculi	370
Urostolith calculi	370
VI. FUNCTIONAL DIAGNOSIS	370
Cryoscopy	371
Electric conductivity	371
Chlorid excretion	372
Methylene blue test	372
Phloridzin test	373
Phenolsulphonephthalein test	373

CHAPTER VII

Secretion of the Genital Organs

I. MALE SECRETIONS	376
General considerations	376
Microscopic examination	376
Pathologic variations	378
Medico-legal aspects	378
Florence's test	379
Barberio's test	379
II. FEMALE SECRETIONS	380
Vaginal secretions	380
Microscopic examination	380
Pathology	381
Bleorrhœa	381
Purulent secretions	382
Fetid secretions	382
Uterine secretions	382
Menstruation	382
The lochia	383

	PAGE
Amniotic fluid	383
Abortion	384
Vesicular mole	384
Carcinoma..	384

CHAPTER VIII

The Blood

I. GENERAL CONSIDERATIONS	385
II. PHYSIOLOGY AND CHEMISTRY	386
Blood formation and blood-forming organs	386
Total volume of blood	387
Volume relations of cells to plasma	390
Methods of obtaining blood	392
Physical properties	393
Color	394
Odor	394
Reaction	395
Specific gravity	399
Viscosity	401
Coagulation	401
Osmotic pressure and cryoscopy	405
Electric conductivity	406
Chemical properties	407
Total solids	409
Blood pigments	409
Hemoglobin	409
Pseudo-hemoglobin	411
Oxy-hemoglobin	411
Met-hemoglobin	411
Carbon monoxid-hemoglobin	412
Carbon-dioxid-hemoglobin	412
Sulph-hemoglobin	412
Decomposition products	413
Hematin	413
Hematoporphyrin	414
Hematoïdin	414
Hemosiderin	415
Malarial pigment	415
Estimation of hemoglobin	415
Direct methods	416
Indirect methods	416
Hemometer of Fleischl-Miescher	417
Hemoglobinometer of Dare	420
Hemometer of Sahli	421
Hemoglobinometer of Oliver	422
Hemoglobinometer of Tallqvist	424
Variations in amount of hemoglobin	425
Oligo-chromemia	426
Color'index	426
Proteins of the blood	427
Other nitrogenous constituents	430
Total nitrogen	430

	PAGE
Total non-protein nitrogen	430
Urea	435
Uric acid	439
Ammonia	443
Creatinin	444
Amino-acids	445
Carbohydrates	445
Fats and fatty acids	449
Acetone	451
Biliary constituents	451
Inorganic constituents	452
Blood gases	454
Ferments of the blood	454
Enumeration of the cells	455
Hemocytometer of Thoma-Zeiss	456
Hemocytometer of Durham	467
Hemocytometer of Oliver	468
III. MORPHOLOGY OF THE BLOOD	469
Examination of fresh blood	470
Preparation of smears	471
Fixation of smears	473
Staining methods	476
Erythrocytes	486
Appearance and structure	486
Size and shape	488
Nucleation	490
Number	492
Normal variations	492
Pathological variations	495
Oligo-cythemia	495
Poly-cythemia	495
Staining properties	496
Degenerations	498
Isotonicity and resistance	499
Variations in childhood and old age	500
Functions	501
Leucocytes	502
Appearance	502
Types in normal blood	502
Lymphocytes	502
Large mononuclears	503
Polymorphonuclear neutrophiles	504
Polymorphonuclear eosinophiles	506
Polymorphonuclear basophiles	506
Types in pathological blood	507
Myelocytes	507
Irritation forms	509
Degeneration forms	509
Differential counting	510
Number	511
Leucocytosis	512
Physiological	513
Pathological	515
Mixed leucocytosis	518

	PAGE
Lymphocytosis	518
Eosinophilia	519
Mast-cell type	521
Leucopenia.	521
Variations in infancy and childhood	521
Functions	522
Blood-plates	523
Appearance	523
Size	524
Number	524
Staining properties	524
Function	525
Hemoconien	525
Morphology of the blood-forming organs	525
IV. PATHOLOGY OF THE BLOOD	528
Special	528
Anemia	528
Primary	528
Simple primary anemia	528
Chlorosis	529
Progressive pernicious anemia	531
Splenic anemia	532
Anemia infantum pseudo-leukemica	533
Leukanemia	534
Aplastic anemia	534
Secondary	534
Acute hemorrhage	535
Chronic hemorrhage	536
Inanition	536
Intestinal parasites	537
Fever	538
Blood poisons	538
Leukemia	539
Spleno-myelogenous type	539
Lymphatic type	543
Acute type.	543
Pseudo-leukemia	544
Hodgkin's disease	544
Tuberculosis of the lymph glands	545
Lympho-sarcoma	545
Gummatoous lymphoma	545
General	546
Blood changes following surgical intervention	546
Constitutional diseases	547
Diabetes mellitus	547
Gout	548
Addison's disease	548
Rickets	549
Myxedema.	549
Acute infections	549
Pneumonia.	550
Typhoid fever	552
Scarlet fever	553
Measles	554

Variola	555
Diphtheria	556
Pertussis	556
Rheumatism	557
Chronic infections	557
Tuberculosis	557
Syphilis	558
Leprosy	559
Carcinoma	559
Effects of splenectomy	560
V. PARASITOLOGY OF THE BLOOD	561
Malaria	561
Examination of fresh blood	563
Tertian parasite	563
Quartan parasite	565
Estivo-autumnal parasite	566
Stained specimens	568
Sporogony	570
General hematological changes	572
Relapsing fever	574
Steeping sickness	575
Kala-azar	576
Filariasis	577
Syphilis	578
Cultivation of treponema pallidum	581
Yellow fever	583
Rocky mountain spotted fever	584
Distomiasis	585
VI. BACTERIOLOGY OF THE BLOOD	585
Technic	585
Organisms found in the blood	587
VII. SERUM PATHOLOGY	593
Ehrlich's side-chain theory	594
Phagocytosis	598
Opsonins	598
Diagnostic use of vaccines	600
Tuberculin reactions	601
Luetin reactions	603
Schick reaction	605
VIII. SERO-DIAGNOSIS	606
Agglutination reactions	607
Gruber-Widal test	607
Method of Bass and Watkins	611
Diseases other than typhoid	613
Precipitin reaction	614
Complement-fixation test	617
Wassermann reaction	620
Noguchi méthode	629
Diseases other than syphilis	636
Abderhalden's sero-diagnosis	638
Of pregnancy	638
Of other conditions	649
Herman-Perutz reaction	651
Tests before transfusion	653

	PAGE
IX. MEDICO-LEGAL ASPECTS	654
Red cells	654
Guaiac test	655
Schaer's test	655
Phenolphthalein test	656
Teichmann's test	657
Spectroscopic examination	658
Precipitin' test	658
X. VALUE AND LIMITATIONS OF BLOOD EXAMINATIONS	659

CHAPTER IX

Transudates and Exudates

I. GENERAL CONSIDERATIONS	662
II. PHYSICAL AND CHEMICAL PROPERTIES	663
Serous exudates	664
Chylous exudates	665
Chyloid exudates	665
Hemorrhagic exudates	665
Purulent exudates	666
Putrid exudates	666
III. BACTERIOLOGY	667
Tubercle bacilli	667
Inoscopy	667
Gonococci	667
Smegma bacilli	669
Ducrey's bacilli	669
Spirochete pallidae	669
IV. CYTOLOGY	672
Technic	672
Cytology of normal fluids	673
Cytology of pathological fluids	673
Pleural exudates	674
Primary tubercular pleurisy	674
Secondary tubercular pleurisy	674
Pneumococcus pleurisy	674
Streptococcus pleurisy	675
Typhoid pleurisy	675
Malignant pleurisy	675
Nephritic and cardiac pleurisy	675
Peritoneal exudates	675
V. CYST FLUIDS	676
Ovarian cysts	676
Serous cysts	676
Myxoid or colloid cysts	676
Papillary cysts	677
Dermoid cysts	677
Parovarian cysts	677
Hydrocele	677
Spermatocele	678
Hydronephrosis	678
Hydatid cysts	678
Pancreatic cysts	678

	PAGE
VI. CEREBROSPINAL FLUID	678
Lumbar puncture	679
Microscopic examination	682
Epidemic cerebrospinal meningitis	682
Tubercular meningitis	684
Acute anterior poliomyelitis	684
Cerebrospinal syphilis	685
Noguchi's butyric acid test	685
Nonne's test	685
Ross-Jones test	686
Lange's colloidal-gold test	686

CHAPTER X ✓

Secretion of the Mammary Glands

I. GENERAL CONSIDERATIONS	688
II. PHYSICAL AND CHEMICAL PROPERTIES	689
Appearance and color	690
Specific gravity	690
Reaction	691
Coagulation	691
Total solids	691
Ash	691
Protein	691
Total protein	692
Method of Sebelien	692
Method of Boggs	692
Casein	693
Albumin and globulin	693
Fat	693
Babcock's method	693
Extraction method	694
Lactose	695
Preservatives in cow's milk	695
Sodium carbonate	695
Salicylic acid	696
Formaldehyde	696
Boric acid and borax	696
III. BACTERIOLOGICAL EXAMINATION OF MILK	696

CHAPTER XI

Clinical Bacteriology

I. GENERAL CONSIDERATIONS	699
II. STERILIZATION	700
III. PREPARATION OF CULTURE MEDIA	701
IV. INCUBATION	704
V. PREPARATION OF CULTURES	705
VI. STAINING	707
VII. IDENTIFICATION OF ORGANISMS	709

TABLE OF CONTENTS

xxxii

	PAGE
VIII. VACCINES	723
Preparation of vaccines	723
Stock vaccines	724
Mixed vaccines	725
Autogenous vaccines	725
Anti-typhoid vaccination	726
INDEX	728