TABLE OF CONTENTS.

CHAPTER I.

Food Analysis and Official Control.......................... 1-11
   Introductory, 1. Food Analysis from the Dietetic Standpoint, 2. Commercial,
   Food Analysis, 3. Systematic Food Inspection; Functions of the Official Analyst;
   Standards of Purity; Nature of Analytical Methods, 3-5. Adulteration of Food, 5.
   Misbranding, 6. A Typical System of Food Inspection, 6-9. Practical Enforcement
   of Food Laws; Publication; Notification; Prosecution, 10.

CHAPTER II.

The Laboratory and Its Equipment.................... 12-27
   Location, 12. Floor; Lighting; Ventilation; Benches, 13. Hoods, 14. Sinks
   and Drains, 15. Gas; Electricity; Steam, 17. Suction and Blast, 18. Apparatus,

CHAPTER III.

Food, Its Functions, Proximate Components, and Nutritive Value........... 28-40
   Nature and General Composition of Food; Fats, 28. Proteins; Classification
   of Nitrogenous Bodies, 29-34. Proteins, their Subdivisions, Occurrence, and
   Characteristic Tests, 29. Amino Acids, etc., 34. Bases; Alkaloids; Nitrates;
   Ammonia; Lecithin; Cyan Compounds, 35. Carbohydrates and their Classifi-
   cation, 35-38. Organic Acids; Mineral or Inorganic Materials; Fuel Value of

CHAPTER IV

General Analytical Methods................................. 41-67
   Proximate Analysis; Expression of Results, 41-42. Preparation of Sample, 43.
   Specific Gravity; Methods and Apparatus, 43-48. Freezing Point; Moisture,
   40-50. Ash, 51. Extraction with Volatile Solvents, 52-56. Extraction with Immis-
   cible Solvents, 57. Nitrogen, 58-62. Protein and Amino Acid Nitrogen; Carbo-
   hydrates; Poisons, 63. Arsenic, 63-66. Colorimetric Analysis; Colorimeter, 66.
   Tintometer, 67.
# TABLE OF CONTENTS

## CHAPTER V

**The Microscope in Food Analysis.** .................................................. 68-85


## CHAPTER VI

**The Refractometer** ................................................................. 86-107


## CHAPTER VII

**Milk and Milk Products** ................................................................. 108-204


Milk Powder, 184. Analysis, 185.
TABLE OF CONTENTS

Cream; Composition, Standards, Adulterants, 186-187. Analytical Methods, 187-190.


Cheese; Composition, Varieties, 196-197. Standards; Adulteration, 198.

Analytical Methods, 199-203.

Protein Preparations; Casein, 203. Lactalbumin, 204.

CHAPTER VIII.

FLESH FOODS ........................................ 205-266


Gelatin, 258.

Fish; Structure; Composition, 250-261. Crustaceans and Mollusks, 262. Canned, Salted and Smoked Fish, 263. Floating of Shellfish, 264. Preservatives in Fish and Oysters; Colors, 265.

Concentrated Foods for Armies and Campers, 265-266.

CHAPTER IX.

EGGS .................................................. 267-279


CHAPTER X.

CEREALS AND THEIR PRODUCTS, LEGUMES, VEGETABLES, AND FRUITS .. 280-377

### TABLE OF CONTENTS


### CHAPTER XI.

TEA, COFFEE, AND COCOA................................................................................ 378-421


TABLE OF CONTENTS.

CHAPTER XII.

Spices................................................................. 422-485


Cloves; Composition, 420-429. Tannin, 429. Microscopy, 430-431. Standards; Adulterants; Clove Stems; Exhausted Cloves, 432. Coconuts Shells, 433.


Standards; Adulteration, 438.


Turmeric; Nature; Composition, 467. Microscopy, 468.


Nutmeg and Mace; Nature, 480. Composition of Nutmeg, 480-481. Microscopy, 481. Standards; Adulteration, 482. Composition of Mace, 482-483. Microscopy; Standards; Adulteration, 484. Bombay or Wild Mace and its Detection; Macassar Mace, 484-485.

CHAPTER XIII.

Edible Oils and Fats................................................... 486-585

**TABLE OF CONTENTS.**


**CHAPTER XIV.**

**SUGAR AND SACCHARINE PRODUCTS.**


- Separation and Determination of Various Sugars, 655, 656.


- Analysis of Glucose; Polarization Formulae, 661-662. Dextrin; Ash; Sulphurous Acid; Arsenic, 663.

- Honey; European; Canadian, 664. American; Hawaiian, 665-666. Cuban; Mexican; Haitian, 667. Adulteration, 668-669.
TABLE OF CONTENTS.

Analysis of Honey; Moisture, 670. Ash; Polarization; Reducing Sugar; Levulose, 671. Dextrose; Sucrose; Dextrin, 672. Acids; Glucose, 673. Invert Sugar; Distinction of Honeydew from Glucose, 674. Beeswax, 675-676.

Confectionery; Standard; Adulteration; Colors, 677. Analytical Methods; Mineral Matter; Lead Chromate, 678. Ether Extract; Paraffine, 679. Starch; Polarization, 680. Alcohol; Colors; Arsenic, 681.

CHAPTER XV.

ALCOHOLIC BEVERAGES. ................................. 682-787


Liqueurs and Cordials, 786. Composition; Analytical Methods, 787.

CHAPTER XVI.

VINEGAR. ............................................. 788-811

TABLE OF CONTENTS.


CHAPTER XVII.

Artificial Food Colors .................................. 812–875

Extent of Use; Objectionable Features, 812. Toxic Effects, 813–814. Harmful and Harmless Colors, 815.

Mineral Colors; Detection, 816.

Lakes; Detection, 817.


CHAPTER XVIII.

Food Preservatives .................................. 876–904


CHAPTER XIX.

Artificial Sweeteners ................................ 905–910


TABLE OF CONTENTS.

CHAPTER XX.

FLAVORING EXTRACTS AND THEIR SUBSTITUTES.......................... 911-956


CHAPTER XXI.

VEGETABLE AND FRUIT PRODUCTS................................. 957-1020


Ketchup; Standards, 977. Process of Manufacture; Composition, 978. Decayed Material; Refuse, 978-980. Foreign Pulp; Preservatives; Colors, 980. Analytical Methods; Solids; Sand, 981. Sugars; Citric Acid, 982. Lactic Acid, 983. Microscopy, 984.


TABLE OF CONTENTS.

Protein, 997. Sugars, 997-999. Glucose; Dextrin, 999. Alcohol Precipitate; Colors, 1000. Preservatives; Sweeteners; Starch; Gelatin, 1001. Agar-agar; Apple Pulp; Fruit Tissues, 1002.
Dried Fruits, 1002. Lye Treatment; Sulphuring, 1003. Moisture; Spoilage; Zinc, 1004.
Fruit Syrups, 1010-1011.
Non-Alcoholic Carbonated Beverages; Soda Water, 1011. Syrups, 1012. Bottled Beverages, 1012-1013. Sweeteners; Acids; Preservatives, 1013. Colors, Foam Producers; Habit-forming Drugs, 1014. Analytical Methods, 1014. Solids; Ash; Acids; Sugars; Flavors; Colors; Preservatives; Sweeteners; Alcohol, 1015. Saponin, 1015-1017. Caffeine; Cocaine, 1017-1020.

CHAPTER XXII.

DETERMINATION OF ACIDITY BY MEANS OF THE HYDROGEN ELECTRODE........ 1021-1039

APPENDIX.

The Food and Drugs Act, 1041. The Meat Inspection Law, 1045.
TABLE OF CONTENTS

PLATES I-XL.

PHOTOMICROGRAPHS OF PURE AND ADULTERATED FOODS AND OF ADULTERANTS.


Legumes: Bean, IX. Lentil, IX, X. Pea, X, XI.

Miscellaneous Starches: Potato; Arrowroot; Tapioca, XII. Turmeric; Sago, XIII.

Coffee, XIV, XV. Chicory, XV, XVI. Cocoa, XVI, XVII. Tea, XVIII.

Spices: Allspice, XVIII, XIX. Cassia, Cinnamon, XX-XXII. Cayenne, XXII-XXIV. Cloves; Clove Stems, XXIV-XXVII. Ginger, XXVII-XXIX. Mace, XXIX. Nutmeg, XXX. Mustard, XXXI-XXXIII. Pepper, XXXIII-XXXVI.

Spice Adulterants: Olive Stones; Cocoanut Shells, XXXVI. Elm Bark; Sawdust; Pine Wood, XXXVII.

Edible Fats: Pure Butter; Renovated Butter; Oleomargarine, XXXVIII. Lard Stearin, XXXIX. Beef Stearin, XL.

PLATE XLII.

Minimum Percentages of Alcohol in Wines Corresponding to Halphen Ratios.