WEIGHTS AND MEASURES REFERENCES

INCLUDING AN INDEX TO THE REPORTS OF
THE NATIONAL CONFERENCE ON WEIGHTS
AND MEASURES FROM THE FIRST TO THE
TWENTY-FIRST, INCLUSIVE

COMPILED BY
RALPH W. SMITH, Senior Engineer
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CONTENTS

Foreword .................................................................................................................. III
Publications of the National Bureau of Standards relating to the subject of weights and measures................................................................. 1
Index to the Reports of the National Conference on Weights and Measures, from the first (1905) to the twenty-first (1928), inclusive:
   Subjects .................................................................................................................. 5
   Names ................................................................................................................... 16
Early publications relating to the history of weights and measures standards in the United States........................................................................ 23
Books relating to the subject of weights and measures, by outside authors..................................................................................................... 25
Weights and measures periodicals........................................................................ 26

II
FOREWORD

The material in this publication has been compiled for the purpose of assembling, in form convenient for use, references to published material relating to the subject of weights and measures standards and administration. Officials of the States and cities engaged in enforcing weights and measures laws, manufacturers of commercial weighing and measuring apparatus, and students of the weights and measures history of the United States will find the references given herein of material assistance in their respective fields of endeavor.

The references are divided into four main groups. In the first are listed various publications of the National Bureau of Standards which relate to the subject of weights and measures in general or specific aspects; the list contains references to publications of the bureau which it is believed are most likely to interest weights and measures officials and manufacturers of weighing and measuring devices.

The second group of references is confined to the reports of the proceedings of the meetings of the National Conference on Weights and Measures, which constitute a valuable library of weights and measures information. Heretofore the material contained in these reports has not been indexed, and, in consequence, information given in the reports on a particular subject or by a particular speaker could not easily be located. To make this information more readily available, two forms of index have been prepared, the first arranged by subjects, and the second arranged by the names of speakers.

The subject index has been carefully cross-indexed, in an effort to enable those using it to locate the desired information under principal or associated words. In the name index, the names of speakers are arranged alphabetically, and under each name appear, in chronological order, the papers or addresses presented to the conference by that speaker; in those instances in which a speaker’s official or business connection has changed during the period covered by the conference reports, his name is entered once for each such connection, with appropriate listing of papers or addresses under each entry. These references will prove especially valuable to the weights and measures official, and to those desiring to trace the development of specifications and tolerances for commercial weighing and measuring devices.

The third group of references relates to weights and measures standards in the United States, and will be of particular interest to students desiring to consult original sources, and to others wishing to make a detailed study of the development of standards in this country.

The final group of references deals with books by outside authors, and periodicals on the subject of weights and measures. A considerable number of the book references have been included for the use of those wishing to inquire somewhat in detail into the development of modern systems of weights and measures, with particular reference to the history of such development in England, from whose standards the weights and measures in customary use in the United States are an outgrowth.
WEIGHTS AND MEASURES REFERENCES

Including an Index to the Reports of the National Conference on Weights and Measures from the First to the Twenty-first, Inclusive

PUBLICATIONS OF THE NATIONAL BUREAU OF STANDARDS RELATING TO THE SUBJECT OF WEIGHTS AND MEASURES

Notes.—The publications of the Bureau of Standards may be purchased, as long as sale copies are available, from the Superintendent of Documents, Government Printing Office, Washington, D. C., at the prices indicated. Purchase orders with remittance in the form of money order, check, or cash (not stamps) should be sent direct to the Superintendent of Documents. In the list which follows, publications marked with an asterisk (*) are no longer available for purchase.

Publications of the Bureau of Standards may be consulted at Government depository libraries located throughout the United States. A list of the names and locations of such libraries will be supplied free upon application to the Bureau of Standards.

A copy of Bureau of Standards Circular No. 24 with the latest supplement thereto, containing the titles and descriptive abstracts of all bureau publications, will be supplied free upon application to the Bureau of Standards.

Circulars of the Bureau of Standards are subject to revision to keep the subject matter current. In the case of circulars listed below, there are given the latest data available at the time this publication went to press. Before ordering circulars it will be advisable to consult the latest supplement to Circular No. 24, which will give information on the latest editions of all circulars.

Publications marked with an asterisk (*) are no longer available for purchase.

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<th>Designation</th>
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<th>Date</th>
<th>Price</th>
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<td>*S1</td>
<td>Recomparison of the United States Prototype Meter, L. A. Fischer.</td>
<td>1904</td>
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<td>*S92</td>
<td>The Testing of Glass Volumetric Apparatus, N. S. Osborne and B. H. Veazey.</td>
<td>1908</td>
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<td>*S215</td>
<td>Micrometer Microscopes, A. W. Gray</td>
<td>1913</td>
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<td>S328</td>
<td>Variance of Measuring Instruments and Its Relation to Accuracy and Sensitivity, F. J. Schlink.</td>
<td>1918</td>
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<td>S507</td>
<td>A New Interference Apparatus for Testing Hemacytometers, C. G. Peters and B. L. Page.</td>
<td>1925</td>
<td>10</td>
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<td>S527</td>
<td>Short Tests for Sets of Laboratory Weights, A. T. Pienkowski.</td>
<td>1926</td>
<td>10</td>
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<td>S534</td>
<td>Effect of Concentrated Loads on the Length of Measuring Tapes, L. V. Judson.</td>
<td>1926</td>
<td>10</td>
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<tr>
<td>S535</td>
<td>A Fundamental Basis for Measurements of Length, H. W. Bearce.</td>
<td>1926</td>
<td>5</td>
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<tr>
<td>S555</td>
<td>A Weight Burette for the Micromeasurement of Liquid Volumes, Martin Shepherd.</td>
<td>1927</td>
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1 Superseded by M64.
<table>
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<td>*T9</td>
<td>The Density and Thermal Expansion of Linseed Oil and Turpentine, H. W. Bearce.</td>
<td>1912</td>
<td>Cents</td>
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<td>T81</td>
<td>Liquid-Measuring Pumps, F. J. Schlink</td>
<td>1916</td>
<td></td>
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<tr>
<td>*T106</td>
<td>Stabilized-Platform Weighing Scale of Novel Design, F. J. Schlink.</td>
<td>1918</td>
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<tr>
<td>T114</td>
<td>A Portable Cubic-Foot Standard for Gas, M. H. Stillman.</td>
<td>1919</td>
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<tr>
<td>*T153</td>
<td>Area Measurement of Leather, F. J. Schlink</td>
<td>1920</td>
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<td>T199</td>
<td>Method for Precision Test of Large-Capacity Scales, C. A. Briggs and E. D. Gordon.</td>
<td>1921</td>
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<td>T208</td>
<td>Weighing by Substitution, C. A. Briggs and E. D. Gordon.</td>
<td>1922</td>
<td>5</td>
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<tr>
<td>T226</td>
<td>A Study of Commercial Dial Micrometers for Measuring the Thickness of Paper, P. L. Houston and D. R. Miller.</td>
<td>1922</td>
<td>10</td>
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<tr>
<td>T247</td>
<td>A New Electrical Telemeter, Burton McCollum and O. S. Peters.</td>
<td>1924</td>
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### CIRCULARS

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<tr>
<td>C1 (2d ed.)</td>
<td>National Bureau of Standards (organization, functions, etc.).</td>
<td>1925</td>
<td>50</td>
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<tr>
<td>*C2 (5th ed.)</td>
<td>Measurements of Length and Area, Including Thermal Expansion.</td>
<td>1915</td>
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<tr>
<td>C3 (3d ed.)</td>
<td>Design and Test of Standards of Mass</td>
<td>1918</td>
<td>15</td>
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<tr>
<td>*C4 (2d ed.)</td>
<td>Verification of Standards of Capacity</td>
<td>1905</td>
<td></td>
</tr>
<tr>
<td>*C5 (3d ed.)</td>
<td>Testing of Clinical Thermometers</td>
<td>1917</td>
<td></td>
</tr>
<tr>
<td>C8 (4th ed.)</td>
<td>Testing of Thermometers</td>
<td>1926</td>
<td>10</td>
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<tr>
<td>*C9 (8th ed.)</td>
<td>Testing of Glass Volumetric Apparatus</td>
<td>1916</td>
<td></td>
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<tr>
<td>C10 (4th ed.)</td>
<td>Legal Weights (in pounds) per Bushel of Various Commodities.</td>
<td>1924</td>
<td>5</td>
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<tr>
<td>C16 (5th ed.)</td>
<td>The Testing of Hydrometers</td>
<td>1922</td>
<td>5</td>
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<tr>
<td>C18 (2d ed.)</td>
<td>Standard Gage for Sheet and Plate Iron and Steel.</td>
<td>1911</td>
<td>5</td>
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<tr>
<td>C19 (6th ed.)</td>
<td>Standard Density and Volumetric Tables</td>
<td>1924</td>
<td>15</td>
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<tr>
<td>C20 (2d ed.)</td>
<td>Electrical Measuring Instruments</td>
<td>1915</td>
<td>15</td>
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<tr>
<td>C24 (7th ed.)</td>
<td>Publications of the Bureau of Standards</td>
<td>1925</td>
<td></td>
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<tr>
<td>C24 (sup.)</td>
<td>Supplementary List of the Publications of the Bureau of Standards.</td>
<td>1927</td>
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<tr>
<td>*C32 (4th ed.)</td>
<td>Standards for Gas Service</td>
<td>1920</td>
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<tr>
<td>C43 (2d ed.)</td>
<td>Jewelers' and Silversmiths' Weights and Measures.</td>
<td>1921</td>
<td>10</td>
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<tr>
<td>*C47 (1st ed.)</td>
<td>Units of Weight and Measure—Definitions and Tables of Equivalents.</td>
<td>1914</td>
<td>15</td>
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<tr>
<td>C47 (sup.) (1st ed.)</td>
<td>(Gives additional information similar in character to that contained in C47.)</td>
<td>1917</td>
<td>5</td>
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<tr>
<td>C51 (1st ed.)</td>
<td>Measurement of Time and Tests of Timepieces</td>
<td>1914</td>
<td>15</td>
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<tr>
<td>C55 (1st ed.)</td>
<td>Measurements for the Household</td>
<td>1915</td>
<td>45</td>
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<tr>
<td>*C57 (2d ed.)</td>
<td>United States Standard Tables for Petroleum Oils.</td>
<td>1916</td>
<td></td>
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<tr>
<td>*C59 (1st ed.)</td>
<td>United States Standard Baumé Hydrometer Scales.</td>
<td>1916</td>
<td></td>
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<tr>
<td>*C61 (1st ed.)</td>
<td>Specifications and Tolerances for Weights and Measures and Weighing and Measuring Devices.</td>
<td>1920</td>
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1 A copy of Circular 24 and/or a copy of the latest supplement thereto will be furnished free, upon request made to the Bureau of Standards, Washington, D. C.
2 Superseded by C154 and supplement thereto.
3 Superseded by M88.
### WEIGHTS AND MEASURES REFERENCES

**CIRCULARS—Continued**

<table>
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<th>Date</th>
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<td>C64 (1st ed.)</td>
<td>Rules and Regulations for Enforcement of Barrel Act.</td>
<td>1917</td>
<td>5</td>
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<tr>
<td>C67 (1st ed.)</td>
<td>Combined Table of Sizes in the Principal Wire Gages.</td>
<td>1918</td>
<td>5</td>
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<tr>
<td>C70 (1st ed.)</td>
<td>Materials for the Household</td>
<td>1917</td>
<td>50</td>
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<tr>
<td>C77 (1st ed.)</td>
<td>Table of Unit Displacement of Commodities</td>
<td>1919</td>
<td>10</td>
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<tr>
<td>C83 (1st ed.)</td>
<td>Specifications for the Manufacture and Installation of Railroad Track Scales</td>
<td>1920</td>
<td>5</td>
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<tr>
<td>C154 (1st ed.)</td>
<td>National Standard Petroleum Oil Tables</td>
<td>1924</td>
<td>30</td>
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<tr>
<td>C154 (sup.) (1st ed.)</td>
<td>(Abridged volume-correction table for petroleum oils.)</td>
<td>1925</td>
<td>5</td>
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<tr>
<td>C199 (1st ed.)</td>
<td>Specifications for Hand-Operated Grain-Hopper Scales.</td>
<td>1925</td>
<td>10</td>
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<tr>
<td>C309 (1st ed.)</td>
<td>Gas-Measuring Instruments</td>
<td>1926</td>
<td>40</td>
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<tr>
<td>C328 (1st ed.)</td>
<td>Testing of Measuring Tapes at the Bureau of Standards.</td>
<td>1927</td>
<td>10</td>
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<td>C329 (1st ed.)</td>
<td>Calibration of a Divided Scale</td>
<td>1927</td>
<td>10</td>
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<td>C332 (1st ed.)</td>
<td>Testing of Line Standards of Length</td>
<td>1927</td>
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<tr>
<td>C333 (1st ed.)</td>
<td>Specifications for the Manufacture and Installation of Two-Section Knife-Edge Railroad Track Scales</td>
<td>1927</td>
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### MISCELLANEOUS PUBLICATIONS

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<td>M2 (2d ed.)</td>
<td>The International Metric System of Weights and Measures.</td>
<td>1922</td>
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<td>M3 (chart)</td>
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<td>M4</td>
<td>Report of the First Annual Conference on Weights and Measures (1905).</td>
<td>1918</td>
<td>10</td>
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<td>M5</td>
<td>Report of the Second Annual Conference on Weights and Measures (1906).</td>
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<td>M6</td>
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<td>*M9 (1911)</td>
<td>Report of the Sixth Annual Conference on Weights and Measures (1911).</td>
<td></td>
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<tr>
<td>M20 (3d ed.)</td>
<td>Federal and State Laws Relating to Weights and Measures.</td>
<td>1926</td>
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<td>Federal and State Laws Relating to Weights and Measures.</td>
<td>1926</td>
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1. Reprinted in H11.
2. Available free upon application to the Bureau of Standards.
3. Superseded as follows: As to general information on weights and measures administration, by H11; as to specifications and tolerances for commercial weighing and measuring devices, by M85. Methods for testing commercial weighing and measuring devices will be treated in a future publication.
## MISCELLANEOUS PUBLICATIONS—Continued

<table>
<thead>
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<td>M39 (3d ed.)</td>
<td>Household Weights and Measures (card)</td>
<td>1926</td>
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<td>M41</td>
<td>Report of the Twelfth Annual Conference on Weights and Measures (1919)</td>
<td>1926</td>
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<td>M43</td>
<td>Report of the Thirteenth Annual Conference on Weights and Measures (1920)</td>
<td>1926</td>
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<td>M45</td>
<td>Buying Commodities by Weight or Measure</td>
<td>1920</td>
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<tr>
<td>M48</td>
<td>Report of the Fourteenth Annual Conference on Weights and Measures (1921)</td>
<td>1921</td>
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<td>M51</td>
<td>Report of the Fifteenth Annual Conference on Weights and Measures (1922)</td>
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<td>M59</td>
<td>Report of the Seventeenth Annual Conference on Weights and Measures (1924)</td>
<td>1924</td>
<td>35 Cents</td>
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<td>M64 *</td>
<td>History of the Standard Weights and Measures of the United States.</td>
<td>1925</td>
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<td>M70</td>
<td>Report of the Eighteenth National Conference on Weights and Measures (1925)</td>
<td>1925</td>
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<tr>
<td>M74</td>
<td>Report of the Nineteenth National Conference on Weights and Measures (1926)</td>
<td>1926</td>
<td>60 Cents</td>
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<td>Standards Yearbook, 1927.</td>
<td>1927</td>
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<td>M80</td>
<td>Report of the Twentieth National Conference on Weights and Measures (1927)</td>
<td>1927</td>
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<td>M83</td>
<td>Standards Yearbook, 1928.</td>
<td>1928</td>
<td>50 Cents</td>
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<tr>
<td>M85</td>
<td>Specifications and Tolerances for Commercial Weighing and Measuring Devices</td>
<td>1929</td>
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<tr>
<td>M87</td>
<td>Report of the Twenty-first National Conference on Weights and Measures (1928)</td>
<td>1928</td>
<td>15 Cents</td>
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<tr>
<td>M90</td>
<td>Directory of Commercial Testing and College Research Laboratories.</td>
<td>1929</td>
<td>100 Cents</td>
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<tr>
<td>M91</td>
<td>Standards Yearbook, 1929.</td>
<td>1929</td>
<td>50 Cents</td>
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<td>M104</td>
<td>Testing Equipment for Large-capacity Scales, for the Use of Weights and Measures Officials</td>
<td>1930</td>
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### HANDBOOKS

<table>
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<th>Title</th>
<th>Date</th>
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<tr>
<td>*H1 10</td>
<td>Manual of Inspection and Information for Weights and Measures Officials</td>
<td>1918</td>
<td>70 Cents</td>
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<td>H11</td>
<td>Weights and Measures Administration</td>
<td>1927</td>
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<td>M85</td>
<td>Specifications and Tolerances for Commercial Weighing and Measuring Devices</td>
<td>1929</td>
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### SIMPLIFIED PRACTICE RECOMMENDATIONS

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<th>Title</th>
<th>Date</th>
<th>Price</th>
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<td>R8–29 (2d ed.)</td>
<td>Range Boilers and Expansion Tanks</td>
<td>1929</td>
<td>10 Cents</td>
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<tr>
<td>R10</td>
<td>Milk and Cream Bottles and Bottle Caps (first revision, 1927).</td>
<td>1929</td>
<td>5 Cents</td>
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<tr>
<td>R16</td>
<td>Lumber (second revision, 1926)</td>
<td>1926</td>
<td>15 Cents</td>
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<td>R20–28 (2d ed.)</td>
<td>Steel Barrels and Drums</td>
<td>1928</td>
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<td>R25</td>
<td>Hot-Water Storage Tanks</td>
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<td>R42</td>
<td>Paper Grocers' Bags</td>
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### COMMERCIAL STANDARDS

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<td>CS1–28</td>
<td>Clinical Thermometers</td>
<td>1928</td>
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1 A reprint of a portion of C55.
2 A reprint of the text of S17 to which have been added a "foreword" and 17 pages of illustrations.
3 Superseded as follows: As to general information on weights and measures administration, by H11; as to specifications and tolerances for commercial weighing and measuring devices, by M85. Methods for testing commercial weighing and measuring devices will be treated in a future publication.
INDEX TO THE REPORTS OF THE NATIONAL CONFERENCE ON WEIGHTS AND MEASURES, FROM THE FIRST (1905) TO THE TWENTY-FIRST (1928), INCLUSIVE.

Notes.—Citation to particular conference reports and to the places in such reports where the desired information may be located, are given in the following manner: The number of the conference report is given first, in bold-face type, followed by the number, in ordinary type, of the page on which the reference begins. Thus 20, 87, would indicate that the material desired would be found beginning on page 87 of the report of the twentieth conference. When material carries over from one session of a conference to the next session, a new reference is given.

For information as to how copies of the conference reports may be procured or consulted and for the designation of the several conference reports according to the numeration followed in the bureau’s series of publications, reference should be made to pages 1, 3, and 4 of this publication.

SUBJECTS

Addresses of—

President of conference, 1, 5; 2, 5; 4, 5; 5, 7; 6, 7; 7, 15; 8, 15; 9, 12; 10, 17; 11, 16; 12, 15; 13, 13; 14, 16; 16, 16; 17, 2; 18, 1; 19, 1; 20, 32; 21, 1.

Secretary of Commerce, 3, 55; 5, 8; 6, 111; 7, 11; 8, 12; 9, 11; 10, 13; 11, 13; 12, 119; 13, 57; 14, 79; 15, 25; 16, 76; 17, 135; 18, 74; 19, 116.

Approval of type of commercial apparatus:

Federal, 4, 8; 8, 55; 9, 164; 10, 159; 12, 50; 12, 134; 15, 57; 15, 66; 15, 72; 18, 147; 20, 43; 20, 58; 21, 75; 21, 98. resolution on, 4, 58; 8, 223; 12, 205; 13, 177; 14, 109; 20, 120.

State, 15, 60; 20, 43; 20, 58.

Automatic-indicating scales, 10, 95; 12, 73.

heavy-duty, tolerances for, 14, 87; 15, 34; 16, 132.

Auxiliary automobile tanks for checking gasoline deliveries, use of, 19, 95; 19, 99.

Babcock glassware, specifications and tolerances for, 19, 157.

Babcock test for milk and cream, 19, 13.

Baggage and freight scales, railroad supervision of, 18, 46.

Balances. See Scales.

Barrel:

beer, size of, 9, 146.

standard—

law, 9, 53; 9, 56; 10, 176.

resolution on, 8, 223.

Baskets:

berry, specifications and tolerances for, 9, 59; 9, 79; 9, 90; 10, 199; 11, App. 1, 14.

standard, resolution on, 19, 168.

Bottles:

lubricating-oil, 19, 17.

resolution on, 19, 170.

specifications and tolerances for, 20, 71; 20, 137; 21, 142.

milk and cream—

filling of, Bureau of Standards investigation on, 16, 43.

specifications and tolerances for, 9, 58; 9, 73; 9, 113; 10, 140; 10, 147; 10, 196; 11, 134; 11, App. 1, 11; 17, 128.

testing of, 16, 47.

uniformity of requirements for, 15, 30; 16, 45; 16, 64; 17, 26.

resolution on, 15, 125; 17, 138.

Boxes, berry, specifications and tolerances for, 9, 59; 9, 79; 9, 90; 10, 199; 11, App. 1, 14.

Bread:

Nebraska decision on, 17, 51.

shrinkage on, 17, 51; 18, 164.

standard weight, legislation, 13, 115; 13, 188; 14, 24; 14, 72; 14, 80; 14, 83; 15, 88; 16, 98; 16, 112; 17, 40; 17, 51; 17, 76; 18, 143; 18, 154; 19, 83.

resolution on, 13, 174; 19, 170.

tolerances for, 14, 87; 14, 84; 15, 79; 15, 91; 16, 112; 17, 51; 17, 63; 17, 126; 18, 143; 18, 154; 18, 163.

87785°—30—2
Bureau of Standards investigation of weights and measures, report on, 5, 101; 6, 41.
Bureau of Standards master scale, installation of, 21, 44.
Bushel weights, 8, 106; 8, 109; 16, 82. See also Dry commodities, sale by weight of.
Butter, tolerance and shrinkage on, 16, 60.
Butterfat-test scales, 9, 39.

specifications and tolerances for, 8, 220; 9, 62; 9, 111; 10, 216; 11, 153; 11, App. 1, 36; 17, 132.
Capacity measures, testing of, 8, 181.

Carat, resolution on, 8, 223.
Centigrade temperature scale, use in Government publications, 11, 39.
Chain-store operation, weights and measures aspects of, 21, 79.
Citation of court decisions, 19, 68; 20, 80.
City and county departments, organization and conduct of, 16, 34.
Civil service:

- protection for sealers, necessity for, 8, 77.
- resolution on, 8, 223.

Clinical thermometers:

- resolution on, 19, 168.
- testing of, 19, 45.

Coal:

- quality of, 18, 186.
- resolution on, 16, 149.
- retail sale of, 16, 127.
- uniform ton for, 15, 53; 15, 124; 16, 65.
- resolution on, 16, 142.
- weighing of, 13, 182; 14, 54; 16, 123.

Coke:

- retail sale of, 16, 127.
- weighing of, 11, 159.

Commercial standards, 21, 66.
Committee on specifications and tolerances. See Specifications and tolerances, committee on.

Computing scales, specifications and tolerances for, 8, 219; 9, 61; 9, 104; 10, 146; 10, 214; 10, 225; 11, 109; 11, App. 1, 33; 17, 131.

Conditions in various weights and measures jurisdictions:

- abroad, 2, 35; 17, 81.
- Far West, 18, 69.
- Latin-American countries, 12, 135.
- Philippine Islands, 10, 50.
- Porto Rico, 9, 138; 17, 17.
- Richmond, Va., 18, 39.
- South, 19, 73.
- Virginia, 9, 146.

Conduct of weights and measures departments, 8, 177; 10, 122; 15, 75; 16, 28; 16, 34; 18, 170.
Conference, change in name of, 18, 73.
Constitution and by-laws, 5, 89; 5, 119; 9, 115; 10, 58; 10, 110; 10, 114; 11, 168; 20, 134; 21, 74.

Containers:

- resolution on, 19, 168.
- resolution on net content marking of, 4, 59; 7, 144; 19, 160.
- standardization of, 6, 46; 6, 134; 12, 89; 13, 122; 13, 189.

Cooperation among weights and measures officials, 21, 60.
Cordage and twine, 16, 63; 17, 71.
Cotton, weighing of, 16, 26.
Counter scales, specifications and tolerances for, 8, 216; 8, 265; 9, 60; 9, 95; 10, 207; 10, 223; 11, 108; 11, 152; 11, App. 1, 25; 21, 151.

County and city departments, organization and conduct of, 16, 34.
Court decisions, citations of, 19, 68; 20, 80.

Cream-test scales, specifications and tolerances for, 8, 220; 9, 62; 9, 111; 10, 216; 11, 153; 11, App. 1, 36; 17, 132.
Creameries, maintenance of scales in, 9, 39; 17, 11.
Customs service, weighing in, 18, 104.
Decisions, court, citations of, 19, 68; 20, 80.
Digest of weights and measures cases, notes on, 21, 155.
Dry capacity measures, specifications and tolerances for, 8, 212; 9, 59; 9, 79; 10, 197; 11, 137; 11, App. 1, 12.

Dry commodities:
- sale by weight of, 8, 106; 8, 109; 9, 147; 10, 109; 10, 189; 12, 212; 13, 185; 15, 17; 16, 82; 17, 37; 19, 59.
- resolution on, 8, 200; 10, 189; 13, 177; 16, 139.

Dry measures, abolition of. See also Dry commodities, sale by weight of:
- resolution on, 16, 146.

Educational activities and publicity, 9, 150; 11, 45; 13, 167; 14, 21; 17, 91; 19, 86; 20, 39; 20, 67; 20, 84.
- resolution on, 12, 206.

Eggs, regulating sale of, 19, 118.

Electric meters, 10, 52; 21, 54.

Essay contests among school children, 21, 62.

Evaporation of gasoline from delivery hose, 15, 111.

Executive committee, membership on, resolution on, 20, 134.

Exhibit, manufacturers', at conference, 17, 106.

Fabric-measuring devices:
- method of test for, 15, 33.
- specifications and tolerances for, 14, 87; 15, 120; 16, 118; 17, 21; 21, 149.
- use of, 11, 117; 13, 169; 20, 8.

Federal Specifications Board, technical committee on weighing and measuring devices, work on, 18, 146.

Fee system of inspection, 12, 87.
- resolution on, 10, 134.

Fischer, Louis Albert, address memorializing, 15, 2.

Flour packages, decimal weight, resolution on, 12, 205.

Food and drugs act, net weight amendment to, enforcement of, 9, 18; 12, 148.

Freight and baggage scales, railroad supervision of, 18, 46.

Freight weighing, Bureau of Standards activities relating to, 18, 34.

Fruit crop in Michigan, regulation of, 20, 133.

Fruits and vegetables:
- standard shipping containers for, 12, 89.
- resolution on, 19, 168.

Fuel-oil storage tanks, testing of, 19, 22.

Gas meters, 8, 90; 21, 54.

Gasoline:
- deliveries, use of auxiliary automobile tanks for checking, 19, 95; 19, 99.
- evaporation of, from delivery hose, 15, 111.
- measurement of, 19, 57.
- temperature as factor in, 16, 50.
- wholesale deliveries of, in vehicle tanks, 15, 53.

Glass graduates:
- for weights and measures officials, 9, 126.
- specifications and tolerances for, 11, 192; 11, App. 1, 7; 17, 127; 20, 121.
- testing of, 9, 39.

Grain, problems in weighing of, 12, 140.

Grease, devices for dispensing, 20, 70.
- specifications and tolerances for, 21, 83; 21, 165.

Gross weight, elimination of sales by, 13, 118; 16, 69.

Hampers, standard, resolution on, 19, 168.

Hay, sale of, 18, 72.

Heavy-capacity, heavy-duty. See Large-capacity.

History of the standard weights and measures of the United States, 1, 6.

Hose, evaporation of gasoline from, 15, 111.

Ice:
- scoring machines for, 20, 22.
- shortages in sales of, 12, 77.

Ice cream:
- method of sale of—
  - report of special committee on, 19, 146.
  - resolution on, 20, 131.
- regulation of, in Wisconsin, 18, 137.
- sale by weight of—
  - viewpoint of manufacturer, 18, 122.
  - viewpoint of retailer, 18, 133.
  - viewpoint of weights and measures official, 18, 115.
- work of joint committee on definitions and standards on, 18, 135.
Industry:

- development of, 21, 99.
- weighing apparatus of, 11, 51; 19, 120.

International Bureau of Weights and Measures, 17, 81.

Interstate commerce, Federal laws in relation to short weight in, 19, 160; 19, 166.

Investigation of weights and measures by National Bureau of Standards, report on, 5, 101; 6, 41.

Jewelry, fraudulent marking of, 17, 140.

Large-capacity platform scales, testing of, 15, 32; 18, 54; 18, 65; 19, 40; 20, 84; 21, 40; 21, 48.

Large-capacity automatic indicating scales, tolerances for, 14, 87; 15, 34; 16, 132.

Latin-American countries, weights and measures conditions in, 12, 135.

Law, model State, on weights and measures. See Model State law on weights and measures.

Leather-measuring devices, testing of, 15, 44.

Length measures. See Linear measures.

Length standards, testing of, 20, 28.

Level and plumb conditions, demonstration of necessity for, 9, 34.

Linear measures, specifications and tolerances for, 8, 210; 9, 57; 9, 68; 10, 193; 11, App. 1, 4; 17, 127; 21, 148.

Liquid capacity measures, specifications and tolerances for, 8, 211; 9, 58; 9, 68; 10, 195; 11, 130; 11, App. 1, 5; 21, 149.

Liquid-measuring devices, 11, 57; 11, App. 2; 12, 169; 13, 59; 15, 111; 20, 95.

specifications and tolerances for, 8, 211; 10, 196; 11, App. 1, 10; 12, 184; 12, 223; 13, 64; 13, 83; 13, 127; 13, 142; 13, 193; 14, 89; 14, 93; 14, 104; 14, 116; 14, 119; 14, 123; 15, 120; 17, 133; 19, 127; 20, 102; 21, 128.

testing of, 14, 64; 15, 111; 21, 104.

Live stock:

problems in weighing of, 19, 40.

scales, 18, 55; 19, 40.

Load, distribution of, among supports of scale platform, 7, 169.

Lubricating-oil bottles. See Bottles, lubricating-oil.

Markets, public, supervision of, 16, 53; 16, 58.

Marking—

- capacity of range boilers, storage tanks, etc., resolution on, 9, 123.
- jewelry, 17, 140.
- net content of containers, resolution on, 4, 59; 7, 144; 19, 160.
- net content of packages, 7, 107; 8, 79; 13, 122; 17, 47; 19, 121.
- net weight on wrapped meats, 12, 145; 14, 45; 20, 121.
- resolution on, 11, 158.
- toilet paper, 11, 113.
- resolution on, 11, 182.

Mass standards, testing of, 19, 103.

Measures:

- capacity—
  - dry, specifications and tolerances for, 8, 212; 9, 59; 9, 79 10, 197; 11, 137; 11, App. 1, 12.
  - liquid, specifications and tolerances for, 8, 211; 9, 58; 9, 68; 10, 195; 11, 130; 11, App. 1, 5; 21, 149.
  - testing of, 8, 151.
  - linear, specifications and tolerances for, 8, 210; 9, 57; 9, 68; 10, 193; 11, App. 1, 4; 17, 127; 21, 148.

Measuring pumps. See Liquid-measuring devices.

Meats, wrapped:

- marking of weight on, 12, 145; 14, 45; 20, 121.
- resolution on, 11, 158.
- shrinkage on, 20, 121.

Meters:

- electric, 10, 52; 21, 54.
- gas, 8, 90; 21, 54.
- gasoline. See also Liquid-measuring devices.
- testing of, 21, 104.
- taxicab. See Taximeters.
- water, 8, 118; 21, 54.

Metric system, 9, 27; 11, 183; 12, 112.

resolution on, 11, 178; 12, 206; 12, 210.

Milk and cream, wholesale sales of, and Babcock test, 19, 13.
Milk and cream bottles. See Bottles, milk and cream.

Mine scales, Bureau of Standards investigation on, 12, 161; 13, 182; 14, 57.

Model State law on weights and measures, 2, 53; 3, 64; 3, 88; 3, 107; 6, 109; 6, 151; 8, 225; 8, 275; 10, 109; 10, 235; 14, 72; 14, 119; 14, 131; 18, 77; 18, 152; 20, 92; 21, 77.

Net-content marking of—
containers, resolution on, 4, 59; 7, 144; 19, 160.
packages, 7, 107; 8, 79; 13, 122; 17, 47; 19, 121.

Net weight:
amendment to food and drugs act, enforcement of, 9, 18; 12, 148.
of wrapped meats, 12, 145; 14, 45; 20, 121.
resolution on, 11, 158.
sales by, 13, 118; 16, 69.

Ordnance Department, work of, 12, 99.

Organization of weights and measures departments, 8, 177; 10, 122; 15, 75; 16, 28; 16, 34; 18, 170.

Package goods:
interstate status of, 17, 47.
-net-content marking of, 7, 107; 8, 79; 13, 122; 19, 121.
slack-filled and deceptive, resolution on, 13, 178; 14, 111.
standardization of, resolution on, 12, 207; 13, 175; 14, 110.

Paper towels and toilet paper, uniform marking of, 11, 113.
resolution on, 11, 182.

Peddlers, regulation of, 18, 121.

Periodical on weights and measures, 21, 71.

Petroleum products, measurement of, 15, 53; 16, 50; 19, 57.

Philippine Islands, weights and measures conditions in, 10, 50.

Plate-fulcrum railroad track scales, 20, 11; 29, 15.

Platform scales, 7, 146.
specifications and tolerances for, 8, 214; 9, 59; 9, 91; 10, 156; 10, 203; 10, 222; 11, 150; 11, App. 1, 20; 17, 131; 21, 151.

Plumb and level conditions, demonstration of necessity for, 9, 34.

Porto Rico, weights and measures conditions in, 9, 138; 17, 17.

Postal scales, testing of, 8, 261; 17, 34; 18, 171.
resolution on, 17, 138.

Potatoes, sweet, measurement of, 16, 63.

Prescription scales, 9, 39.
specifications and tolerances for, 11, 154; 11, App. 1, 37.

President of conference, addresses of, 1, 5; 2, 5; 4, 5; 5, 7; 6, 7; 7, 15; 8, 15; 9, 12; 10, 17; 11, 10; 12, 15; 13, 13; 14, 16; 16, 16; 17, 2; 18, 1; 19, 1; 20, 32; 21, 1.

Prosecutions, 14, 50; 17, 85; 19, 89.


Publicity and educational activities, 9, 150; 11, 45; 13, 167; 14, 21; 17, 91; 19, 86; 20, 30; 20, 67; 20, 84; 21, 62; 21, 71.

Public markets, supervision of, 16, 53; 16, 58.

Pumps, measuring. See Liquid-measuring devices.

Railroad track scales. See Scales, railroad track.

Range boilers, marked capacity of, resolution on, 9, 123.

Records, system of keeping, 7, 90; 10, 171.

Reports of—
Committee on resolutions. See Resolutions.
Committee on specifications and tolerances. See Specifications and tolerances, committee on, reports of.
Secretary of conference, 5, 12; 6, 13; 7, 16; 8, 15; 9, 15; 10, 46; 11, 83; 12, 25; 13, 18.

Resolutions on—
approval of type of commercial apparatus, 4, 58; 8, 223; 12, 205; 13, 177; 14, 109; 20, 120.
barrel, standard, 8, 223.
baskets, standard, 19, 168.
bottles—
lubricating-oil, 19, 170.
milk, uniform requirements for, 15, 125; 17, 138.
bread, standard weight loaves, 13, 174; 19, 170.
carat, 8, 223.
civil service for weights and measures officials, 8, 223.
Resolutions on—Continued.

clinical thermometers, 19, 168.
coal, standards of quality for, 16, 149.
containers, net-content marking of, 4, 59; 7, 144; 19, 160.
dry commodities, sale by weight of, 8, 200; 10, 189; 13, 177; 16, 139.
dry measures, abolition of, 16, 146.
education of public, 12, 206.
Executive committee, membership on, 20, 134.
fee system for weights and measures inspection, 10, 134.
flour packages, decimal-weight, 12, 205.
hampers, standard, 19, 168.
ice cream, method of sale of, 20, 131.
lubricating-oil bottles, 19, 170.
marking—
net-content of containers, 4, 59; 7, 144; 19, 160.
net weight of wrapped meats, 11, 158.
toilet paper and paper towels, 11, 182.
milk bottles, uniform requirements for, 15, 125; 17, 138.
net-content marking of containers, 4, 59; 7, 144; 19, 160.
net weight of wrapped meats, 11, 158.
package goods—
slack-filled and deceptive, 13, 178; 14, 111.
standardization of, 12, 207; 13, 175; 14, 110.
paper towels and toilet paper, uniform marking of, 11, 182.
postal scales, testing of, 17, 138.
range boilers, marked capacity of, 9, 123.
sale by weight, 8, 200; 10, 189; 13, 177; 16, 139; 12, 205; 19, 167.
scales, postal, testing of, 17, 138.
standard—
barrel, 8, 223.
baskets and hampers, 19, 168.
standard-weight bread loaves, 15, 174; 19, 170.
standardization of packages, 12, 207; 13, 175; 14, 110.
standards of quality for coal, 16, 149.
storage tanks, marked capacity of, 9, 123.
Stratton, Samuel W., life and work of, 16, 136.
taximeters, transmission drive for, 21, 160.
testing of postal scales, 17, 138.
thermometers, clinical, 19, 168.
toilet paper and paper towels, uniform marking of, 11, 182.
ton, 2,000-pound, 16, 142.
transmission drive for taximeters, 21, 180.
type of commercial apparatus, approval of, 4, 58; 8, 223; 12, 205; 13, 177; 14, 109; 20, 120.
uniform laws, regulations, etc., among the States, 10, 186; 21, 161.
weight, sale of dry commodities by, 8, 200; 10, 189; 13, 177; 16, 139.
weights and measures correspondence course, 18, 182.
Rewording of specifications and tolerances, general authorization for, 9, 113; 15, 129; 17, 126; 21, 147.

Sale by weight:

dry commodities, 8, 106; 8, 109; 9, 147; 10, 109; 10, 189; 11, 88; 12, 212; 13, 185; 15, 17; 16, 82; 17, 37; 19, 59.
resolution on, 8, 200; 10, 189; 13, 177; 16, 139.
elimination of sales by gross weight, 13, 118; 16, 69.
general, resolution on, 12, 205; 19, 167.

ice cream, 18, 115; 19, 146.
resolutions on, 20, 131.
meats, wrapped, 12, 145; 14, 45; 20, 121.
resolutions on, 11, 158.
sales by net weight, 13, 118; 16, 69.

Scale-testing device, 21, 40.
Scales:

automatic-indicating, 10, 95; 12, 73.
large-capacity, tolerances for, 14, 87; 15, 34; 16, 132.
 baggage, 18, 46.
butterfat-test, 9, 39.

specifications and tolerances for, 8, 220; 9, 62; 9, 111; 10, 216; 11, 153; 11, App. 1, 36; 17, 132.
Scales—Continued

computing, specifications and tolerances for, 8, 219; 9, 61; 9, 104; 10, 146; 10, 214; 10, 225; 11, 109; 11, App. 1, 33; 17, 151.
counter, specifications and tolerances for, 8, 216; 8, 265; 9, 60; 9, 95; 10, 207; 10, 223; 11, 108; 11, 152; 11, App. 1, 25; 21, 151.
cream-test and butterfat-test, 9, 39.
specifications and tolerances for, 8, 220; 9, 62; 9, 111; 10, 216; 11, 153; 11, App. 1, 36; 17, 152.
creamery, maintenance of, 9, 39; 17, 11.
customs service, 18, 104.
design and construction of, 8, 123.
distribution of load among platform supports of, 7, 169.
freight, 18, 46.
general, specifications and tolerances for, 8, 213; 9, 59; 9, 90; 9, 99; 9, 112; 10, 139; 10, 148; 10, 151; 10, 200; 10, 220; 11, 107; 11, 137; 11, App. 1, 15, 16, 129; 17, 130; 21, 149.
grain, 12, 140.
heavy-duty. See Large-capacity.
industrial, 11, 51; 19, 120.
jewelers', 9, 39.
large-capacity automatic indicating, tolerances for, 14, 87; 15, 34; 16, 132.
large-capacity platform, apparatus and methods for testing, 15, 32; 18, 54; 18, 65; 19, 40; 20, 84; 21, 40; 21, 48.
livestock, 18, 55; 19, 40.
mine, Bureau of Standards investigation on, 12, 161; 13, 182; 14, 57.
notes on, 8, 135.
platform, 7, 146.
specifications and tolerances for, 8, 214; 9, 59; 9, 91; 10, 156; 10, 203; 10, 222; 11, 150; 11, App. 1, 20; 17, 131; 21, 151.
testing device for, 21, 40.
postage, testing of, 8, 261; 17, 34; 18, 171.
resolution on, 17, 138.
specification, 9, 39.
specifications and tolerances for, 11, 154; 11, App. 1, 37.
railroad track, 6, 67; 10, 82; 10, 86; 11, 62; 11, 73; 11, 97; 12, 64; 12, 107; 13, 182; 18, 34; 18, 176; 20, 11; 20, 15.
Bureau of Standards investigation on, 10, 82; 12, 64; 13, 182; 18, 34.
Bureau of Standards master, installation of, 21, 44.
developments in construction of, 6, 67; 11, 97; 12, 107; 20, 11; 20, 15.
freight weighing on, 18, 34.
installation and maintenance of, 11, 73.
methods of adjusting, inspecting, and testing, 10, 86; 11, 62.
plate fulcrum, 20, 11; 20, 15.
test cars for, 18, 176.
spring—
specifications and tolerances for, 8, 217; 8, 219; 9, 60; 9, 99; 10, 140; 10, 211; 10, 213; 11, 109; 11, 152; 11, App. 1, 30; 11, App. 1, 33; 17, 131; 21, 152.
straight-face, specifications and tolerances for, 8, 219; 10, 213; 11, App. 1, 33; 21, 152.
stock, 18, 55; 19, 40.
suspension, lever type, specifications and tolerances for, 10, 211; 11, 152; 11, App. 1, 29.
Scoring machines for ice, 20, 22.
Scaling, methods of, and seals, 8, 204.
Secretary of Commerce, addresses of, 3, 55; 5, 8; 6, 111; 7, 11; 8, 12; 9, 11; 10, 13; 11, 13; 12, 119; 13, 57; 14, 79; 15, 25; 16, 76; 17, 132; 18, 74; 19, 116.
Secretary of Conference, reports of, 5, 12; 6, 13; 7, 16; 8, 15; 9, 15; 10, 46; 11, 83; 12, 25; 13, 18.
Serialization of commercial apparatus. See Approval of type of commercial apparatus.
Service, sale of, 16, 23.
Shipping containers, standard, for fruits and vegetables, 12, 89.
resolution on, 19, 168.
Shrinkage on—
bread, 17, 51; 18, 164.
butter in prints, 16, 60.
wrapped meats, 20, 121.
Simplification and standardization, 16, 94.

Specifications and tolerances:

committee on—

enlargement of, 10, 143.

reports of, and discussions thereon, 7, 121; 8, 209; 9, 57; 9, 89; 10, 137; 11, 127; 13, 64; 13, 83; 13, 127; 13, 142; 14, 89; 14, 93; 15, 34; 15, 79; 15, 87; 15, 120; 15, 126; 16, 89; 16, 118; 16, 129; 16, 132; 16, 151; 17, 21; 17, 100; 17, 115; 17, 126; 18, 25; 18, 97; 18, 107; 18, 163; 19, 88; 19, 127; 19, 156; 20, 71; 20, 102; 20, 121; 21, 53; 21, 128; 21, 142; 21, 147; 21, 165.

rewording of. general authorization of, 9, 113; 15, 129; 17, 126; 21, 147.

Specifications and/or tolerances for—

automatic-indicating scales, large capacity, 14, 87; 15, 34; 16, 132.

Babeck glassware, 19, 157.

balances. See Scales.

berry baskets or boxes, 9, 59; 9, 79; 9, 90; 10, 199; 11, App. 1, 14.

bottles—

lubricating-oil, 20, 71; 20, 137; 21, 142.

milk and cream, 9, 55; 9, 73; 9, 113; 10, 140; 10, 147; 10, 196; 11, 134; 11, App. 1, 1, 17, 128.

boxes, berry, 9, 59; 9, 79; 9, 90; 10, 199; 11, App. 1, 14.

bread, 14, 37; 14, 84; 15, 79; 15, 91; 16, 112; 17, 51; 17, 63; 17, 126; 18, 143; 18, 154; 18, 163.

butter, 16, 60.

butterfat-test scales, 8, 220; 9, 62; 9, 111; 10, 216; 11, 153; 11, App. 1, 36; 17, 132.

computing scales, 8, 219; 9, 61; 9, 104; 10, 146; 10, 214; 10, 225; 11, 109; 11, App. 1, 33; 17, 131.

counter scales, 8, 216; 8, 265; 9, 60; 9, 95; 10, 207; 10, 223; 11, 108; 11, 152; 11, App. 1, 25; 21, 151.

cream-test scales, 8, 220; 9, 62; 9, 111; 10, 216; 11, 153; 11, App. 1, 36; 17, 132.

dry capacity measures, 8, 212; 9, 59; 9, 79; 10, 197; 11, 137; 11, App. 1, 12.

dry measuring devices, 14, 87; 15, 126; 16, 118; 17, 21; 21, 149.

glass graduates, 11, 132; 11, App. 1, 7; 17, 127; 20, 121.

grease-measuring devices, 21, 83; 21, 165.

heavy-capacity, heavy-duty. See Large-capacity.

large-capacity automatic indicating scales, 14, 87; 15, 34; 16, 132.

linear measures, 8, 210; 9, 57; 9, 68; 10, 193; 11, App. 1, 4; 17, 127; 21, 148.

liquid capacity measures, 8, 211; 9, 55; 9, 68; 10, 195; 11, 130; 11, App. 1, 5; 21, 149.

liquid-measuring devices, 8, 211; 10, 196, 11, App. 1, 10; 12, 184; 12, 223; 13, 64; 13, 83; 13, 127; 13, 142; 13, 193; 14, 89; 14, 93; 14, 104; 14, 116; 14, 119; 14, 123; 15, 120; 17, 138; 19, 127; 20, 102; 21, 128.

lubricating-oil bottles, 20, 71; 20, 137; 21, 142.

measures—

dry capacity, 8, 212; 9, 59; 9, 79; 10, 197; 11, 137; 11, App. 1, 12.

linear, 8, 210; 9, 57; 9, 68; 10, 193; 11, App. 1, 4; 17, 127; 21, 148.

liquid capacity, 8, 211; 9, 55; 9, 68; 10, 195; 11, 130; 11, App. 1, 5.

measuring pumps. See Liquid-measuring devices.

milk and cream bottles, 9, 58; 9, 73; 9, 113; 10, 140; 10, 147; 10, 196; 11, 134; 11, App. 1, 17, 128.

platform scales, 8, 214; 9, 59; 9, 91; 10, 156; 10, 203; 10, 222; 11, 150; 11, App. 1, 20; 17, 131; 21, 151.

prescription scales, 11, 154; 11, App. 1, 37.

pumps, measuring. See Liquid-measuring devices.

scales—

butterfat-test, 8, 220; 9, 62; 9, 111; 10, 216; 11, 153; 11, App. 1, 36; 17, 132.

computing, 8, 219; 9, 61; 9, 104; 10, 146; 10, 214; 10, 225; 11, 109; 11, App. 1, 33; 17, 131.

counter, 8, 216; 8, 265; 9, 60; 9, 95; 10, 207; 10, 223; 11, 108; 11, 152; 11, App. 1, 25; 21, 151.

cream-test and butterfat-test, 8, 220; 9, 62; 9, 111; 10, 216; 11, 153; 11, App. 1, 36; 17, 132.

general, 8, 213; 9, 59; 9, 90; 9, 99; 9, 112; 10, 139; 10, 148; 10, 151; 10, 200; 10, 220; 11, 107; 11, 137; 11, App. 1, 15; 16, 129; 17, 130; 21, 149.
Specifications and/or tolerances for—Continued.

scales—Continued.

large-capacity automatic-indicating, 14, 87; 15, 34; 16, 132.
platform, 8, 214; 9, 59; 9, 91; 10, 156; 10, 203; 10, 222; 11, 150; 11,
App. 1, 20; 17, 131; 21, 151.
prescription, 11, 154; 11, App. 1, 37.
spring, 8, 217; 8, 219; 9, 60; 9, 90; 10, 140; 10, 211; 10, 213; 11, 109;
11, 152; 11, App. 1, 30; 11, App. 1, 33; 17, 131; 21, 152.
straight-face, 8, 219; 10, 213; 11, App. 1, 33; 21, 152.
suspension, lever type, 10, 211; 11, 152; 11, App. 1, 29.
spring scales, 8, 217; 8, 219; 9, 60; 9, 90; 10, 140; 10, 211; 10, 213; 11, 109;
11, 152; 11, App. 1, 30; 11, App. 1, 33; 17, 131; 21, 152.
suspension scales, lever type, 10, 211; 11, 152; 11, App. 1, 29.
tanks, vehicle (wagon, truck), 14, 88; 16, 89; 16, 151; 17, 100; 17, 115; 18,
25; 21, 149.
taximeters, 18, 97; 18, 107; 19, 38.
vehicle tanks (wagon, truck), 14, 88; 16, 89; 16, 151; 17, 100; 17, 115; 18,
25; 21, 149.
weighers, wheel load, 19, 156; 21, 151.
weights, 8, 220; 9, 62; 9, 112; 10, 216; 11, 155; 11, App. 1, 41; 17, 132.
Spring scales, specifications and tolerances for, 8, 217; 8, 219; 9, 60; 9, 90; 10,
140; 10, 211; 10, 213; 11, 109; 11, 152; 11, App. 1, 30; 11, App. 1, 33; 17, 131;
21, 152.
straight-face, specifications and tolerances for, 8, 219; 10, 213; 11, App. 1,
33; 21, 152.
Standard barrel:
law, 9, 53; 9, 56; 10, 176.
resolution on 8, 223.
Standard baskets and hampers, resolution on, 19, 168.
Standard shipping containers for fruits and vegetables, 12, 89.
resolution on, 19, 168.
Standard-weight bread. See Bread.
Standardization of—
bread weights. See Bread, standard weight, legislation.
containers, 6, 46; 6, 134; 12, 89; 13, 122; 13, 189.
resolution on, 19, 168.
packages, resolution on, 12, 207; 13, 175; 14, 110.
Standardization and simplification, 16, 94.
Standards:
capacity, testing of, 8, 181.
commercial, 21, 66.
length, testing of, 20, 28.
mass, testing of, 19, 103.
precision, manufacture of, 15, 102.
quality, for coal, resolution on, 16, 149.
Stock scales, 18, 55; 19, 40.
Straight-face spring scales, specifications and tolerances for, 8, 219; 10, 213;
11, App. 1, 33; 21, 152.
Stratton, Samuel W.:
presentation of resolutions and medallion to, 17, 108.
resolution on life and work of, 16, 138.
Storage tanks, resolution on marked capacity of, 9, 123.
Sugar industry, weights in, 20, 35.
Supervisional activities, 12, 57; 14, 50; 17, 85; 17, 111; 18, 44; 19, 26; 19, 89;
21, 93.
Suspension scales, lever type, specifications and tolerances for, 10, 211; 11, 152;
11, App. 1, 29.
Sweet potatoes, measurement of, 16, 63.
Tanks:
fuel-oil storage, testing of, 19, 22.
storage, marking of, resolution on, 9, 123.
vehicle (wagon, truck), 15, 53.
specifications and tolerances for, 14, 88; 16, 89; 16, 151; 17, 100; 17,
115; 18, 25; 21, 149.
testing of, 17, 94; 19, 57.
Taximeters:
  specifications and tolerances for, 18, 97; 18, 107; 19, 38.
  test and inspection of, 12, 85; 17, 117; 17, 121; 18, 78; 19, 31.
  transmission drive for, 19, 31; 20, 80.
  Bureau of Standards investigation on, 21, 21.
  resolution on, 21, 160.
Temperature as factor in measurement of gasoline, 16, 50.
Test cars, railroad track scale testing, 18, 176.
Testing device for scales, 21, 40.
Testing of—
  bottles, milk and cream, 16, 47.
  capacity measures, 8, 181.
  clinical thermometers, 19, 48.
  electric meters, 10, 52.
  fabric-measuring devices, 15, 93.
  fuel-oil storage tanks, 19, 22.
  glass meters, 8, 90.
  glassware, graduated, 9, 39.
  large-capacity scales, 15, 32; 18, 54; 18, 65; 19, 40; 20, 84; 21, 40; 21, 48.
  leather-measuring devices, 15, 44.
  length standards, 20, 28.
  liquid-measuring devices, 14, 64; 15, 111; 21, 104.
  livestock scales, 18, 55; 19, 40.
  mass standards, 19, 103.
  measures, capacity, 8, 181.
  meters—
    electric, 10, 52.
    gas, 8, 90.
    taxicab, 12, 85; 17, 117; 17, 121; 18, 78; 19, 31.
    water, 8, 118.
  milk and cream bottles, 16, 47.
  postal scales, 8, 261; 17, 34; 18, 171.
    resolution on, 17, 138.
  scales—
    grain, 12, 140.
    jewelers', 9, 39.
    large-capacity platform, 15, 32; 18, 54; 18, 65; 19, 40; 20, 84; 21, 40; 21, 48.
    livestock, 18, 55; 19, 40.
    postal, 8, 261; 17, 34; 18, 171.
    resolution on, 17, 138.
    railroad track, 10, 86; 11, 62.
  standards—
    capacity, 8, 181.
    length, 20, 28.
    mass, 19, 103.
    stock scales, 18, 55; 19, 40.
    tanks—
      fuel-oil, 19, 22.
      vehicle (wagon, truck), 17, 94; 19, 57.
  taximeters, 12, 85; 17, 117; 17, 121; 18, 78; 19, 31.
  thermometers, clinical, 19, 48.
  vehicle tanks, 17, 94; 19, 57.
  water meters, 8, 118.
  weighers, wheel-load, 19, 151.
  weights (office standards and test weights), 19, 103.
  wheel-load weighers, 19, 151.

Thermometers, clinical:
  resolution on, 19, 168.
  testing of, 19, 48.

Tobacco industry, weights in, 20, 35.

Toilet paper, uniform marking of, 11, 113.
  resolution on, 11, 182.

Tolerances. *See Specifications and/or tolerances.
  necessity for, in excess, 17, 51; 18, 110.

Ton:
  resolution on 2,000-pound, 16, 142.
  uniform, for coal, 15, 53; 15, 124; 16, 65.
Track scales, railroad. See Scales, railroad track.
Transient vendors, regulation of, 18, 121.
Transmission drive for taximeters, 19, 31; 20, 80; 21, 21; 21, 160.
Twine and cordage, 16, 63; 17, 71.
Type of commercial apparatus, approval of. See Approval of type of commercial apparatus.
Uniform laws, regulations, etc., among the States, 21, 60.
resolution on, 10, 186; 21, 161.
Vegetables and fruits:
method of sale of. See Sale by weight, dry commodities.
standard shipping containers for, 12, 89.
resolution on, 19, 168.
Vehicle tanks (wagon, truck), 15, 53.
specifications and tolerances for, 14, 88; 16, 89; 16, 151; 17, 100; 17, 115; 18, 25; 21, 149.
testing of, 17, 94; 19, 57.
Vendors, transient, regulation of, 18, 121.
Water meters, testing of, 8, 118; 21, 54.
Weights, wheel-load:
protection of highways by, 15, 26.
specifications and tolerances for, 19, 156; 21, 151.
testing of, 19, 151.
Vegetable:
baggage and freight, 18, 34; 18, 46.
coal, 13, 182; 14, 54; 16, 123.
coke, 11, 159.
cotton, 16, 26.
creamery, 17, 11.
grain, 12, 140.
in customs service, 18, 104.
industrial, 11, 51; 19, 120.
live stock, 19, 40.
sugar, 20, 35.
tobacco, 20, 35.
Weighmasters, supervision of, 18, 12.
Weight:
sale of dry commodities by, 8, 106; 8, 109; 9, 147; 10, 109; 10, 189; 11, 88; 12, 212; 13, 185; 15, 17; 16, 82; 17, 37; 19, 59.
resolution on, 8, 200; 10, 189; 13, 177; 16, 139.
sale of ice cream by, 18, 115; 19, 146.
resolution on, 20, 131.
sales by, general resolution on, 12, 205; 19, 167.
sales by net weight, 13, 118; 16, 69.
Weights:
office standards and test weights, testing of, 19, 103.
specifications and tolerances for, 8, 200; 9, 62; 9, 112; 10, 216; 11, 155; 11, App. 1, 41; 17, 132.
Weights and measures correspondence course, resolution on, 18, 182.
Wheel-load weighers:
protection of highways by, 15, 26.
specifications and tolerances for, 19, 156; 21, 151.
testing of, 19, 151.
Wood, sale of, 12, 61.
Wrapped meats, shrinkage on, 20, 121.
NAMES

Alexander, Hon. Joshua W., Secretary of Commerce: Address, 13, 57.
Allen, L. J., chief inspector of weights and measures, city of Seattle, Wash.: Heavy-capacity platform scales: Apparatus and methods for field tests, 18, 63.
Alsberg, C. L., Bureau of Chemistry, United States Department of Agriculture: Enforcement of net-weight amendment to the food and drugs act, 9, 18; 12, 148.
Andersen, Hon. A. H., Member of Congress, third district, Minnesota: Weights and measures prosecutions, 19, 89.
Austin, George F., sealer of weights and measures, city of Detroit, Mich.: Inspection and regulation of taximeters, 12, 55.
Calibration of vehicle tanks in Detroit, Mich., 17, 94.
Heavy-capacity platform scales: Apparatus and methods for field tests, 18, 55.
Transmission drive for taximeters, 19, 31.
Marked weight and shrinkage of hams and other wrapped meats, 20, 124.
Bacigalupio, A. W., inspector of weights and measures, city of Memphis, Tenn.: Safeguarding the merchant, 18, 44.
Baker, H. W., Ohmer Fare Register Co.: Transmission drive for taximeters, 20, 83.
Barnard, F. G., sealer of weights and measures, city of Battle Creek, Mich.: Regulations for the weighing of coke, 11, 159.
Barnard, H. E., American Institute of Baking:
Bread legislation from the standpoint of the baker, 14, 24.
Divergence of bread-labeling requirements, 16, 98.
Application of scientific methods of law enforcement, 17, 63.
Proposed tolerances for loaves of bread, 18, 143.
Barnes, Miss Margareta, Hutzler Bros., Baltimore, Md.: Department-store control of fabric measurement, 20, 8.
Barrett, H. F., Buffalo Meter Co.: Testing of gasoline meters in the factory, 21, 126.
Barron, R. F., commissioner of weights and measures, State of Minnesota: Detecting shortages, securing evidence, and prosecuting offenders, 14, 50.
Sale of service on the basis of weight or measure, 16, 23.
Bearce, H. W., Bureau of Standards:
Glass graduates suitable for weights and measures officials, 9, 126.
Necessity for tolerances in excess as well as in deficiency, 18, 110.
Bell, Raymond, Bureau of Dairying, United States Department of Agriculture: Wholesale sale of milk and cream, and the Babcock test, 19, 13.
Berka, Frank, deputy sealer of weights and measures, city and county of Los Angeles, Calif.: Testing of gasoline meters in the field, 21, 112.
Bousfield, A., E. & T. Fairbanks & Co.:
Design and construction of scales, 8, 123.
Development in heavy track-scale construction, 11, 97.
Heavy-capacity platform scales: Apparatus and methods for factory tests, 18, 65.
Development of industry, 21, 99.
Boyer, L. R., Fairbanks, Morse & Co.: Plate-fulcrum principle in scale construction, 20, 11.
Brand, Hon. Charles, Member of Congress, seventh district, Ohio: Standard-weight bread law, 17, 59; 19, 83.
Bridge, M. A., sealer of weights and measures, city of Columbus, Ohio: Use of auxiliary automobile tanks for checking gasoline deliveries, 19, 101.

16
Car weighing, 7, 162.
Distribution of the load among the various points of support of a scale platform, 7, 169.
Notes on scales, 8, 135.
Report of railroad track scale tests conducted by the Bureau of Standards, 10, 52.
Developments in specifications for railroad track scales, 12, 107.
Brooks, C. A., United States Department of Agriculture: Heavy-capacity platform scales: Apparatus and methods for field tests, 18, 55.
Problems in livestock weighing, 19, 40.
Brooks, P. C., Scale and Balance Manufacturers' Association: Manufacturers' attitude toward approval of type, 15, 72.
Bulson, Charles H., sealer of weights and measures, county of Jefferson, New York: Publicity as a means of increasing cooperation and efficiency, 17, 91.
Burgess, George K., Bureau of Standards: President's address, 17, 2; 18, 1; 19, 1; 20, 32; 21, 1.
Cheyney, A. R., Post Office Department: Post Office Department program for checking and maintaining accuracy of scales in service, 18, 171.
Cluett, W. F., chief deputy inspector of weights and measures, city of Chicago, Ill.: Method of keeping sealers' records, 7, 90.
Proposed bread-weight legislation in Illinois, 14, 30.
Enforcing sales-by-weight legislation and the elimination of the dry measure, 15, 17.
Organization and conduct of city and county departments of weights and measures, 19, 34.
Method of test of taximeters in Chicago, 17, 117.
Supervision of weighmasters, 18, 12.
Corwin, A. W., sealer of weights and measures, county of Alleghany, New York: Marked weight and shrinkage of hams and other wrapped meats, 20, 127.
A periodical on weights and measures by the sealers association, 21, 71.
Craig, James H., deputy secretary of internal affairs, State of Pennsylvania: Mandatory net-content marking of all commodities in package form, 19, 121.
Cronin, P. D., United States Department of Agriculture: Federal laws in relation to short weight in interstate commerce, 19, 160; 19, 166.
Testing of clinical thermometers, 19, 52.
Methods adopted for regulation of new types of devices, 20, 49.
Regulating the sale of eggs in Oregon, 19, 118.
Promotion of interest in weights and measures supervision by essay contests among school children, 21, 62.
Downing, F. P., Bureau of Markets, United States Department of Agriculture: Movement toward obtaining standard shipping containers for marketing fresh fruits and vegetables, 12, 89.
Drake, Fred R., National Wholesale Grocers' Association: Metric system, 9, 27.
Durgin, William A., Bureau of Standards: Standardization and simplification, 16, 94.
Ebright, A. W., Pennsylvania Railroad:
  Railroad track scales, 6, 67.
  Railroad supervision of baggage and freight scales, 18, 46.
  Plate-fulcrum master scale installation at Altoona works on Pennsylvania Railroad, 20, 15.

Ernst, Morris L., Jewelers' Board of Trade, New York, N. Y.: Fraudulent marking of jewelry, 17, 140.

Essig, A., National Meter Co.: Testing of gasoline meters in the factory, 21, 119.

Estes, Howard R., sealer of weights and measures, city of Flint, Mich.  
  Temperature as a factor in the measurement of gasoline, 16, 50.
  Heavy-capacity platform scales: Apparatus and methods for field tests, 18, 63.
  Bottles for the sale of lubricating oil, 19, 17.

Fairechild, I. J., Bureau of Standards: Commercial standards, 21, 66.


Fischer, Louis A., Bureau of Standards:  
  Secretary's report. 5, 12; 6, 13; 7, 16; 8, 15; 9, 15; 10, 46; 11, 83; 12, 25; 13, 18.  
  History of the standard weights and measures of the United States, 1, 6.  
  Foreign weights and measures laws and regulations, 2, 35.  
  Mine scale work of the Bureau of Standards, 14, 57.

Flaherty, Thomas, sealer of weights and measures, city and county of San Francisco, Calif.: Use of auxiliary automobile tanks for checking gasoline deliveries, 19, 99.

Flurry, H. L., chief, division of weights and measures, State of Alabama:  
  Solving weights and measures problems in the South, 19, 73.
  Methods adopted for regulation of new types of devices, 20, 50.

Foley, J. Harry, superintendent of weights and measures, State of New Jersey:  
  Elimination of sales by gross weight, 16, 69.
  New Jersey sale-by-weight law, 17, 37.
  Methods adopted for regulation of new types of devices, 20, 47.

Foster, William, sealer of weights and measures, city of Springfield, Mass.  
  Organization and conduct of city and county departments of weights and measures, 16, 36.
  Testing of gasoline meters in the field, 21, 104.

Fuller, Charles M., sealer of weights and measures, city and county of Los Angeles, Calif.:  
  Enforcement of bread legislation, including proper tolerances, 14, 37.
  Organization and conduct of city and county departments of weights and measures, 16, 39.
  Measurement of petroleum products, 19, 57.
  Devices for dispensing greases and similar products, 20, 70.

Gast, Fred W., United States Treasury Department: Weighing in the Customs Service, 18, 104.


Gordon, E. D., Bureau of Standards: Progress of track-scale investigations, 12, 64.

Greene, Edward L., National Better Business Bureau (Inc.): The business man and the weights and measures official, 21, 93.


Griffith, S. T., chief, division of weights and measures, city of Baltimore, Md.:  
  Personal element in our work, 18, 170.
  How the public is educated in Baltimore, 20, 84.

Hall, Thomas, National Association of Ice Cream Manufacturers: Methods of sale for ice cream, 19, 148.

Halsey, F. A., American Institute of Weights and Measures: Metric system, 12, 112.

Haskell, W. C, superintendent of weights, measures, and markets, District of Columbia: Difference in the amount of a bushel of a commodity when sold by weight and when sold by measure, 8, 109.

Hardwick, Hon. Thomas W., chairman, Committee on Coinage, Weights, and Measures, House of Representatives: Address, 7, 54.

Harrison, M. J. J., Bureau of Standards: Mine scales and mine-scale investigation, 12, 161.
Hartigan, Joseph, commissioner, mayor’s bureau of weights and measures, city of New York, N. Y.: Serialization of type, 9, 164.

Hedwall, F. H., Boston & Maine Railroad: Installation and maintenance of track scales, 11, 73.

Hem, H. O., Toledo Scale Co.: Automatic scales, 12, 73.

Regulation of new types of devices, 20, 58.

Hem, H. Warren, Toledo Scale Co.: A new scale-testing device, 21, 40.

Henrichson, W. T., meter inspector, division of weights and measures, State of Texas: Supervision of gas, electric, and water meters in Texas, 21, 54.

Henry, H. H., commissioner of weights and measures, State of Vermont: Functions of a State Bureau, 8, 177.


Hinds, Sherwood, St. Louis Pump & Equipment Co.: Regulation of new types of devices, 20, 64.

Holbrook, F. S., Bureau of Standards:

State legislation, résumé, 7, 18.
Weights and measures of Porto Rico, 9, 138.

Standard barrel law, 10, 176.

History of legislation in re approval of type, 15, 66.
Method of test in conformance with specification No. 8 for liquid-measuring devices, 15, 115.

Present status of negotiations toward obtaining uniform regulations for milk bottles, 16, 45.

Decision of the United States Supreme Court on Nebraska bread law, 17, 51.

Practicability of proposed sale of commodities on basis of moisture-free ingredients, 18, 154.

Holwell, Joseph J., commissioner, mayor’s bureau of weights and measures, city of New York, N. Y.:

Federal regulation of weighing and measuring devices, 12, 134.
Weights and measures education in the schools, 13, 167.
Relationship between weights and measures officials, merchants, and manufacturers, 15, 75.

Manner of sale of cordage, 16, 71.

Hoover, Hon. Herbert, Secretary of Commerce: Address, 14, 79; 15, 25; 16, 76; 17, 135; 18, 74; 19, 116.

Horigan, J. B., United States Department of Agriculture: Interstate status of package goods, 17, 47.

Hosch, G. Carlton, Measuregraph Co.: Machine measurement for fabrics, 11, 117.

Hovey, V. F., National Association of Ice Cream Manufacturers: Shall ice cream be sold by weight? Viewpoint of the manufacturer, 18, 129.

Intemann, E. A. G., jr., New Jersey Retail Ice Cream and Candy Manufacturers’ Association: Shall ice cream be sold by weight? Viewpoint of the retailer, 18, 133.

Irvine, T. L., superintendent of weights and measures and oil inspection, city of Salt Lake City, Utah: Destination weighing of coal from the standpoint of the official, 14, 54.

Johnson, Charles G., superintendent of weights and measures, State of California: Proper publicity for a weights and measures department, 11, 45.

Net weight, 13, 118.

Judson, L. V., Bureau of Standards:

International Bureau of Weights and Measures and general impressions of weights and measures abroad, 17, 81.

Testing of standards of length, 20, 28.

Keene, A., United States Taximeter Corporation: Transmission drive for taximeters, 19, 34.

Kelly, Dennis, scaler of weights and measures, city of Bridgeport, Conn.: Heavy-capacity platform scales: Apparatus and methods for field tests, 18, 57.

Klueter, Harry, assistant dairy and food commissioner, State of Wisconsin: Regulation of sale of ice cream in Wisconsin, 18, 137.

Kremer, C. J., Retail Bakers’ Association of America: Bread-weight legislation and the retail baker, 16, 104.

Lawrence, David, The United States Daily:
- The press and the official, 20, 39.

Lawrence, E. Kent, Baltimore & Ohio Railroad: Origin and destination weighing of coal in carload lots, 16, 123.

Lindsay, C. A., Howe Scale Co.: Heavy-capacity platform scales: Apparatus and methods for factory tests, 18, 67.

Lutze, August, sealer of weights and measures, city of Sheboygan, Wis.: Cooperation between State and local weights and measures departments, 16, 28.


MacLean, A. D., Pittsburgh Equitable Meter Co.: Testing of gasoline meters in the factory, 21, 122.

Maroney, Edward J., sealer of weights and measures, city of New Haven, Conn.: Problems arising in the supervision of public markets, 16, 53.

Heavy-capacity platform scales: Apparatus and methods for field tests, 18, 58.

Meads, Albert H., Toledo Scale Co.: Proposed amendments to specifications for scales, 11, 107.

Meek, J. H., director, division of markets, State of Virginia:
- Marked weight and shrinkage of hams and other wrapped meats, 20, 121.
- Some comments on cooperation among weights and measures officials, 21, 60.

Miller, I. L., commissioner of weights and measures, State of Indiana:
- Attitude of the Middle West toward the abolition of bushel weights, 16, 82.
- Enforcement of the Indiana bread law, 17, 40.
- Operation of compulsory sales-by-weight statutes, 19, 61.

Mills, J. B., Ohmer Fare Register Co.: Transmission drive for taximeters, 19, 36.

Moller, Col. I. L., traffic department, District of Columbia: Portable devices designed for determining the axle loads of loaded trucks on highways, 19, 151.

Moore, George B., chief inspector of weights and measures, county of Allegheny, Pa.:
- Organization and conduct of city and county departments of weights and measures, 16, 41.
- Heavy-capacity platform scales: Apparatus and methods for field tests, 18, 64.

Mote, John M., assistant chief inspector of weights and measures, State of Ohio:
- Reasons for standard-weight loaves of bread and enforcement of Ohio standard-weight bread law, 15, 88.


Nagel, Hon. Charles, Secretary of Commerce and Labor: Address, 5, 8; 6, 111; 7, 11.

Neale, Charles C., commissioner of weights and measures, State of Minnesota:
- Seals and methods of sealing, 8, 204.
- Demonstration showing the necessity of maintaining scale levers level and lever connections plumb, 9, 34.
- Weight standardization of bread, 13, 115.

Neale, Charles C., Toledo Scale Co.: Weighing in industry, 19, 120.

Parry, William, Bureau of Standards: Notes on digest of weights and measures cases, 21, 155.

Paul, Lawrence, chief, bureau of weights and measures, city of Richmond, Va.:
- Problems arising in the supervision of public markets, 16, 58.

Peffer, E. L., Bureau of Standards:
- Proposed method for testing milk and cream bottles, 16, 47.
- Gauging of fuel-oil storage tanks, 19, 22.


Rafferty, James J., collector of internal revenue for the Philippine Islands:
- Weights and measures conditions in the Philippine Islands, 10, 50.

Ragland, B. W., chief, bureau of weights and measures, city of Richmond, Va.:
- Activities of bureau in Richmond, 18, 39.

Rasmussen, Fred, National Association of Ice Cream Manufacturers: Shall ice cream be sold by weight? Viewpoint of the manufacturer, 18, 122.
WEIGHTS AND MEASURES REFERENCES

Redfern, E. L., scaler of weights and measures, State of Iowa: Training the prospective housewife, 19, 86.

Redfield, Hon. William C., Secretary of Commerce: Address, 8, 12; 9, 11; 10, 13; 11, 13; 12, 119.

Reichmann, Fritz, superintendent of weights and measures, State of New York: Content of container law, 8, 79.

Reichmann, Fritz, former superintendent of weights and measures, State of New York:
  Selection and maintenance of apparatus in industrial plants, 11, 51.
  Machine measurements in retail dry goods stores, 13, 169.

Richard, C. L., Bureau of Standards: Test car accuracy, 18, 176.

Roberts, George M., superintendent of weights, measures, and markets, District of Columbia:
  Retail sale of coal and coke, 16, 127.
  Regulatory activities of a weights and measures department, 19, 26.

Roesser, H. M., Bureau of Standards:
  What the Bureau of Standards is doing to increase the accuracy of weighing revenue freight, 18, 34.
  Testing methods and tolerances for portable devices designed for determining the axle loads of loaded trucks on highways, 19, 153.
  Notes on apparatus for testing heavy-capacity scales, 20, 84.
  Installation of Bureau of Standards master scale, 21, 44.

Rogers, Joseph G., secretary, department of weights and measures, State of New Jersey:
  Shall ice cream be sold by weight? Viewpoint of the weights and measures official, 18, 115.
  New equipment for testing heavy-capacity scales in New Jersey, 21, 48.

Roylance, William M., Western Fruit Jobbers Association of America: Sales by weight, 10, 109.

Runkel, H., Bureau of Chemistry, United States Department of Agriculture: Enforcement of law in re marking of weights on wrapped meats, 14, 45.

Saldaña, E. J., executive secretary of Porto Rico:
  Administration of weights and measures in Porto Rico, 17, 17.
  Weights in the sugar and tobacco industries, 20, 35.

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  Automatic scales, 10, 95.
  Liquid-measuring pumps, 11, 57; 11, App. 2.

Schmitz, J. A., Chicago Board of Trade: Problem of weights in the handling of grain, 12, 140.

Schwartz, A. W., assistant superintendent of weights and measures, State of New Jersey:
  Standardization of containers for foodstuffs and the marking of the weight of commodities in package form, 13, 122.
  Heavy-capacity platform scales: Apparatus and methods for field tests, 18, 57.


Seraphin, Theo. A., district supervisor of weights and measures, city and county of Philadelphia, Pa.:
  Use of auxiliary automobile tanks for checking gasoline deliveries, 19, 95.
  Testing of gasoline meters in the field, 21, 110.

Sharp, Benjamin M., chief clerk, bureau of weights and measures, city and county of Philadelphia, Pa.:
  System of keeping records, 10, 171.

Sherman, John H., superintendent of weights, measures, and markets, District of Columbia: Weights and measures work from the standpoint of the efficiency engineer, 10, 122.


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Small, A. R., Underwriters' Laboratories: Gasoline pumps from the standpoint of safety, 13, 59.

Smedley, William, Retail Merchants' Association of Pennsylvania: The retail merchant, 17, 111.

Smith, Leslie C., National Association of Ice Industries: Short weighting in ice sales, 12, 77.
Smith, Ralph W., deputy commissioner of weights and measures, State of Minnesota: Uniformity of State laws in weights per bushel of commodities, 8, 106.

Smith, Ralph W., chief inspector of weights and measures, State of Wisconsin: Mechanical versus supervisional weights and measures work, 12, 57.

Smith, Ralph W., Bureau of Standards:
- Testing of liquid-measuring devices, 14, 64.
- Proposed procedure for field test of fabric-measuring devices, 15, 93.
- Evaporation of gasoline from delivery hose of liquid-measuring devices, 15, 111.
- Bureau of Standards investigation on commercial filling of milk and cream bottles, 16, 43.
- Uniformity of regulations for milk bottles, 17, 26.
- Proposed method of test of taximeters, 18, 78.
- Bureau of Standards investigation on the transmission drive for taximeters, 21, 21.

Staples, George H., inspector of weights and measures, State of Minnesota: Salary system versus fee system of inspection, 12, 87.

Stephenson, John H., sealer of weights and measures, city of Rochester, N. Y.: Testing of gasoline meters in the field, 21, 115.


Stratton, S. W., Bureau of Standards:
- President's address, 1, 5; 2, 5; 4, 5; 5, 7; 6, 7; 7, 15; 8, 15; 9, 12; 10, 17; 11, 16; 12, 15; 13, 13; 14, 16; 16, 16.
- Address memorializing Louis Albert Fischer, 1864–1921, 15, 2.

Stratton, S. W., Massachusetts Institute of Technology: Address, 17, 89.

Straus, Hon. Oscar S., Secretary of Commerce and Labor: Address, 3, 55.

Strobridge, Edward K., sealer of weights and measures, county of Alameda, Calif.: Heavy-capacity platform scales: Apparatus and methods for field tests, 18, 59.

Strong, L. P., chief, division of weights and measures, State of Michigan: Regulating the fruit crop in Michigan, 20, 133.

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Votaw, G. A., commissioner of markets, weights, and measures, city of Cleveland, Ohio: Scoring machines for ice, 20, 22.


Warner, George, chief inspector of weights and measures, State of Wisconsin: Wisconsin equipment for testing heavy-capacity scales, 15, 32.

Heavy-capacity platform scales: Apparatus and methods for field tests, 18, 54.

Methods adopted for regulation of new types of devices, 20, 56.


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EARLY PUBLICATIONS RELATING TO THE HISTORY OF WEIGHTS AND MEASURES STANDARDS IN THE UNITED STATES

NOTE.—In Miscellaneous Publication of the Bureau of Standards No. 64, History of the Standard Weights and Measures of the United States, will be found a unified and relatively brief presentation of that subject. For those wishing to make a more detailed study along this line, the following list of references to original sources has been prepared; these references have been selected almost entirely from a bibliography on standard weights and measures published in 1898 by the United States Coast and Geodetic Survey.


Report of the Committee on Weights and Measures, Second Congress, first session, April 5, 1792. [Jour. of the Senate, pp. 173, 174.]

Communication from Minister of French Republic, January 9, 1795. [Ex. Docs., 3d Cong., 2d sess.]

Reports on Weights and Measures. Representative Carter B. Harrison, April 12, 1796. [Ex. Docs., 4th Cong., 1st sess.]


Report of the Secretary of the Treasury on examination of weights and measures of the customhouses, June 20, 1832. [22d Cong., 1st sess., Doc. No. 299, H. R.]

Report on Weights and Measures, Franklin Institute, 1834.

Letter from the Secretary of the Treasury transmitting information in relation to a standard of weights and measures, December 26, 1835. [24th Cong., 1st sess., Doc. No. 32, H. R.]


Letter from the Secretary of the Treasury transmitting report of F. R. Hassler on standards of weights and measures, July 3, 1838. [House Doc. No. 454, 25th Cong., 2d sess.]

Report of F. R. Hassler as superintendent of construction of standards of weight and measure, November 14, 1838. [Forms part of Senate Doc. No. 4, 25th Cong., 3d sess.]

Upon the construction of standards of weights and measures, November 16, 1839. [Forms part of Senate Doc. No. 15 and of House Doc. No. 20, 26th Cong., 1st sess.]

Report of F. R. Hassler, superintendent of weights and measures, on completion of standard yard measures, July 10, 1840. [House Doc. No. 261, 26th Cong., 1st sess.]

Upon the construction of standard weights and measures, November 17, 1840. [Forms part of House Doc. No. 14, 26th Cong., 2d sess.]

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Reports of F. R. Hassler as superintendent of construction of standards of weight and measure, April, June, and November, 1843, and January, 1844. [House Doc. No. 94, 28th Cong., 1st sess.]

Report of Alexander D. Bache, superintendent of weights and measures, on construction of standard weights, measures, and balances, February, 1845. [Senate Doc. No. 149 and House Doc. No. 159, 28th Cong., 2d sess.]

Reports of Alexander D. Bache, superintendent of weights and measures, on construction of standard weights, measures, and balances, April 25 and August 7, 1846. [Senate Doc. No. 483, 29th Cong., 1st sess.]

Reports of Alexander D. Bache, superintendent of weights and measures, on construction of standard weights, measures, and balances, July 30 and August 12, 1848. [Senate Ex. Doc. No. 73 and House Ex. Doc. No. 84, 30th Cong., 1st sess.]

Report of Alexander D. Bache, superintendent of weights and measures, on construction and distribution of standard weights, measures, and balances, December 31, 1856. [Senate Ex. Doc. No. 27, 34th Cong., 3d sess.]

Report of the Secretary of the Treasury on the weights and measures furnished the States and their cost, December 15, 1858. [Senate Ex. Doc. No. 6, 35th Cong., 2d sess.]

Report of Mr. Kasson of the Committee on Coinage, Weights, and Measures, on a uniform system of weights and measures, May 17, 1866. [House Report No. 62, 39th Cong., 1st sess.]

Relation of standards of measure of United States to those of Great Britain and France, by J. E. Hilgard, assistant, United States Coast Survey, 1876. [App. No. 22 to U. S. Coast Survey Report for 1876.]


Letters of C. P. Patterson, superintendent, and J. E. Hilgard, assistant, United States Coast Survey, on obligatory use of metric system of weights and measures, March 1878. [House Ex. Doc. No. 71, 45th Cong., 2d sess.]

Statement of J. E. Hilgard, assistant, United States Coast Survey, on standard weights and measures of the United States, May 8, 1878. [House Mis. Doc. No. 61, 45th Cong., 2d sess.]

Papers relative to the convention establishing the International Bureau of Weights and Measures, June 11, 1878. [House Ex. Doc. No. 96, 45th Cong., 2d sess.]

Report of Mr. Vance of the Committee on Coinage, Weights, and Measures, on a decimal system of weights and measures, March 5, 1880. [House Mis. Doc. No. 29, 46th Cong., 2d sess.]

Letter of F. M. Thorn, superintendent, United States Coast and Geodetic Survey, relating to supplying standard weights, measures, and balances to States and Territories, January, 1886. [Senate Ex. Doc. No. 55, 49th Cong., 1st sess.]

Verification of Weights and Measures, by O. H. Tittmann, assistant, United States Coast and Geodetic Survey, November 30, 1889. [Coast and Geodetic Survey Bulletin No. 15, 1889.]

On the relation of the yard to the metre, by O. H. Tittmann, assistant, United States Coast and Geodetic Survey. [App. No. 16, Annual Report of the U. S. Coast and Geodetic Survey, 1890, being a republication, with additions, of a paper first published as U. S. Coast and Geodetic Survey Bulletin No. 9.]


Fundamental Standards of Length and Mass, by T. C. Mendenhall, superintendent of standard weights and measures, April 5, 1893. [App. No. 6, Annual Report of the U. S. Coast and Geodetic Survey, 1890, having been first published as U. S. Coast and Geodetic Survey Bulletin No. 26.]
BOOKS RELATING TO THE SUBJECT OF WEIGHTS AND MEASURES, BY OUTSIDE AUTHORS

NOTE.—The following short list of weights and measures books has been selected from the limited literature on this subject, as comprising those most apt to interest American weights and measures officials, manufacturers, and students. No publications in a foreign language have been included, nor is the list inclusive of all books on the subject printed in English.


Construction of the Balance, by E. Brauer. Third edition, 1909. (Revised by Fr. Lawaceck, and translated by Henry C. Walters. "According to underlying principles and according to its special purpose. For use by manufacturers of weighing instruments as also for technical colleges and schools." Published by the Incorporated Society of Inspectors of Weights and Measures. (Address: Secretary, Weights and Measures Office, Council House, Coventry, England.)


Evolution of Weights and Measures and the Metric System, by William Hallock and Herbert T. Wade. 1906. "It has been the aim of the authors to present in simple and nontechnical language, so far as possible, a comprehensive view of the evolution of the science of metrology as it is now understood." Published by the Macmillan Co., New York, N. Y.

Historical Essays, by William Robertson. 1872. Standards of the past in weight and currency, land measurements, etc. Published by Edmonston and Douglas, Edinburgh, Scotland.


Scales and Weighing, by Herbert T. Wade. 1924. "Deals with the many forms of weighing equipment now available for industrial and commercial use and the ways in which they are utilized by well-organized concerns to secure operation at a profit." Published by the Ronald Press Co., New York, N. Y.

Statesman's Yearbook. Condensed information, including data on weights and measures, for all countries. Published annually by Macmillan & Co. (Ltd.), London, England.

Tate's Modern Cambist, by H. T. Easton. 1921. "A manual of foreign exchanges and bullion with the monetary systems of the world and foreign weights and measures * * *." Published by Effingham Wilson, London, England.


Weights and Measures, by James Roberts. Third edition, 1908. "Being the weights and measures acts 1878 to 1904; the board of trade regulations, 1907; statutory provisions relating to the sale or checking of various commodities by weight or measure; together with the principles of weighing and measuring." Published by Charles Knight & Co. (Ltd.), London, England.
WEIGHTS AND MEASURES PERIODICALS

United States:
Scale Journal (monthly). Published by the Scale Journal Publishing Co. Editor: J. A. Schmitz, 309 South La Salle Street, Chicago, Ill.
Weights and Measures News (monthly). Published by the New York State Association of Sealers of Weights and Measures. Editor: A. W. Corwin, Wellsville, N. Y.

Great Britain:

France:
Review de Métrologie Pratique (monthly). Publisher and Editor: Adrien Roux, 10 Quai des Célestins, Paris, France. (This periodical is in the French language.)

1 Publication of this periodical was temporarily discontinued with the issue of June, 1929.