U. S. DEPARTMENT OF COMMERCE

NATIONAL BUREAU OF STANDARDS

REPORT OF THE TWENTY-NINTH NATIONAL CONFERENCE ON WEIGHTS AND MEASURES

ATTENDED BY REPRESENTATIVES FROM VARIOUS STATES

HELD AT THE NATIONAL BUREAU OF STANDARDS
WASHINGTON, D. C., JUNE 6, 7, 8, AND 9, 1939

MISCELLANEOUS PUBLICATION M164

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U. S. DEPARTMENT OF COMMERCE
HARRY L. HOPKINS, Secretary
NATIONAL BUREAU OF STANDARDS
LYMAN J. BRIGGS, Director

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Official photograph of delegates and guests attending the Twenty-ninth National Conference on Weights and Measures, assembled at the entrance of the East Building, National Bureau of Standards.

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Norfolk & Western Railway Co.: C. H. Rodeniser, General Scale Inspector, Roanoke, Va.

Owens-Illinois Glass Co.:
H. A. Trumbull, Merchandising Manager, Ohio Building, Toledo, Ohio.
Edward F. Glacken, Eastern Sales Manager, Chrysler Building, New York, N. Y.
J. D. Laird, Supervisor of Specifications, Toledo, Ohio.

Pennsylvania Railroad: M. J. J. Harrison, Supervisor of Scales and Weighing, Altoona, Pa.

Scale Journal Publishing Co.: Edith G. Jacobs, Secretary, 1703 East Eighty-fourth Street, Chicago, Ill.

Sinclair Refining Co.: James G. Bohart, 630 Fifth Avenue, New York, N. Y.

Standard Oil Company of New Jersey:
J. W. Saybolt, Sales Manager, 26 Broadway, New York, N. Y.
L. L. Kennedy, C. & M. Assistant, Newark, N. J.

Southern Railway System: J. N. Todd, Superintendent of Scales, P. O. Box 1808, Washington, D. C.

Tide-Water Associated Oil Co.: Edgar A. Orpin, Supervisor of Equipment, 17 Battery Place, New York, N. Y.

Wood, Gar, Industries (Inc.): B. A. Cooper, Sales Engineer, Vernon Street and Broadway, Long Island City, N. Y.

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REPORT OF THE TWENTY-NINTH NATIONAL CONFERENCE ON WEIGHTS AND MEASURES

HELD AT THE NATIONAL BUREAU OF STANDARDS, WASHINGTON, D. C., JUNE 6, 7, 8, AND 9, 1939

FIRST SESSION—MORNING OF TUESDAY, JUNE 6, 1939

(The Conference was called to order at 11:10 a. m., by Lyman J. Briggs, President of the Conference.)

PROGRESS IN THE STANDARDIZATION OF LARGE-CAPACITY SCALES

By Lyman J. Briggs, *Director, National Bureau of Standards, and President, National Conference on Weights and Measures*

Members of the Conference, ladies and gentlemen: It is a great pleasure to the National Bureau of Standards to welcome you to the Twenty-ninth National Conference on Weights and Measures.

In my opening talk at the Twenty-eighth Conference on Weights and Measures last year I took occasion to mention that we hoped soon to have here at the National Bureau of Standards a suitable vehicle scale of our own. I am now happy to announce that this hope has become a reality. A 60,000-pound vehicle scale with a 40- by 10-ft platform has been installed, and this has been tested and accepted by the Bureau. This scale will be visited on the tour of the Bureau laboratories which will be made tomorrow afternoon. The scale is completely installed and ready to weigh. I regret, however, that the surroundings are not as shipshape as I had hoped they would be when you arrived.

The scale will eventually be entirely housed—at present the enclosure is only partially constructed. However, it is far enough advanced so that you can visualize what is contemplated. The concrete roadways on either end of the scale are also in very sketchy condition. Eventually there will be in the scale house not only the vehicle scale but a beam for the sealing of heavy weights from 100 to 1,000 pounds —you will see this beam on your tour tomorrow—and a 10,000-pound scale for testing weights of more than 1,000 pounds and for the weighing of heavy loads. A 10,000-pound crane will be installed for handling these objects. We shall have then, assembled under one roof, facilities for testing weights and accurately weighing loads ranging in size from 100 to 60,000 pounds. We have long needed such facilities.

I now desire to discuss with you certain actions which the Bureau is preparing to take in relation to specifications and tolerances for railway track and vehicle scales.

Some 20 years ago the first nationally recognized specification for the manufacture and installation of railway track scales was formulated by a joint committee of various interested organizations, including the National Bureau of Standards. This specification was issued as Circular No. 83, published by the National Bureau of Standards in

1920. It was widely accepted. A number of manufacturers designed scales to comply with these requirements, and they were made the basis of many scale purchases. As a result, they had a profound influence in the railway track scale field, resulting in very greatly improved conditions throughout the United States. This specification served its purpose excellently for a number of years.

A few years after this specification was issued, work was started on the formulation of a competent purchase specification for other large-capacity scales. This work was intrusted to the Subcommittee on Scales established by the Yards and Terminals Committee of the American Railway Engineering Association. The membership of this subcommittee included a member of the staff of the National Bureau of Standards and also representatives of other organizations interested in the proper design, construction, and accuracy of scales. When completed and approved this specification was published in the AREA Bulletin; thereafter it was published by the National Bureau of Standards as Letter Circular No. 152. It represented the first competent nationally recognized purchase specification for the types of scales which were included within its purview. As in the case of the specifications for railway track scales discussed above, these requirements resulted in greatly improving the design and construction of the types of scales in question.

A few years ago it was felt that the time had arrived when these original specifications for railway track scales and for other large-capacity scales might well be amended to some extent. Consequently, this work was undertaken, and naturally it was inaugurated under the auspices of the Subcommittee on Scales of the Yards and Terminals Committee.

These revised specifications were eventually completed by the Committee and were put through the usual routine necessary to obtain the formal approval of the Association of American Railroads, and in 1936 they were issued by that Association. They are entitled, respectively, "Specifications for the Manufacture and Installation of Four-Section, Knife-Edge, Railway Track Scales—1936," and "Specifications for the Manufacture and Installation of Motor-Truck, Built-in, Self-Contained and Portable Scales for Railway Service—1936."

Both of these specifications appear in the Manual of the Association and also in a booklet entitled "Scales," issued by the Association of American Railroads. The foreword of this booklet cites the facts that the rules and specifications contained therein "were developed in the Engineering Division, A. A. R., with the active and helpful collaboration of the National Bureau of Standards, the National Scale Men's Association, the Scale and Balance Manufacturers' Association, and the Traffic Department, A. A. R. They describe methods and practices which have been demonstrated by experience to be essential for satisfactory scale equipment, and carry the approval, as of the date of this publication, of the Association of American Railroads."

The best railway track scale and motortruck scale installations now commercially procurable may be secured by specifying and enforcing the requirements of these two specifications. These specifications supersede the former specifications contained in National Bureau of Standards Circular No. 83 and Letter Circular No. 152, both of which are now out of print. It is the intention of the National Bureau of

Standards to supersede these publications by another which will set forth the provisions of the present AAR specifications. Moreover, I am advised by the chairman of the Subcommittee on Weighing and Measuring Devices of the Federal Specifications Board that the necessary steps will be inaugurated to the end that these specifications may become the basis of the purchase requirements of the Federal Government and of the other agencies which utilize, in purchasing, the specifications approved by the Federal Specifications Board.

Since the specifications mentioned above for railway track scales and motortruck scales and other large-capacity scales are purchase specifications, the tolerances given therein are tolerances for new scales only; tolerances to be applied to scales in use (maintenance tolerances) are not included. However, maintenance tolerances for railway track scales have been adopted by the Association of American Railroads, these being included in "Rules for the Location, Maintenance, Operation, and Testing of Railway Track Scales—1934." Recently the Bureau has been reviewing the tolerances applied by the Bureau in its tests of railway track scales. These tolerances are basically the same as those applied by the various railroads in their own tests of railway track scales. However, they differed in one respect, namely, the railroad tolerances specified that when a test car of 7-foot wheelbase or less is used in a test, in no case shall the error at any position of the test car exceed 0.3 percent, or 3 lb per 1,000 lb of test load. This made the railroad tolerance slighly more stringent than the Bureau tolerance, since on a four-section scale the Bureau tolerance is applied only to the largest mean of two errors found for different specified positions of the test car, and no specific limitation is placed on the error developed on an individual section. The limitation adopted by the railroads is a reasonable one. Consequently, this requirement is being adopted by the Bureau and will be put into effect at the beginning of the coming fiscal year, July 1, 1939. We feel that this is a satisfactory step toward uniformity.

The Bureau has not been applying tolerances to railway track scales having automatic indicating or recording devices embodied in or attached to them; we have merely been reporting the errors developed upon test. A tolerance on scales equipped with these devices was adopted by the Association of American Railroads in 1934. In adopting this tolerance the Association of American Railroads followed the requirement contained in the code of tolerances adopted by the National Conference on Weights and Measures (Scales J. Tolerances—par. J–1a. 2). Since the Bureau has always considered the Conference requirement a sound one, we are adopting the AAR tolerance, and will apply it to track scales equipped with these devices and inspected by the Bureau on and after July 1, 1939. Again, we are achieving uniformity.

As to the maintenance tolerance on vehicle scales, you will recall that in 1937 this Conference adopted certain amendments to its scale code, with special reference to requirements for vehicle scales, as follows: On vehicle scales in use the tolerance to be applied to the results on a corner shall be 0.4 percent, provided that the algebraic mean of the errors on the two corners at each end of the scale shall not exceed the regular tolerance of 0.2 percent; also when a load of test weights of not less than 8,000 pounds is employed in any test of a vehicle scale

in use, certain minimum tolerances are specified. Following your 1937 Conference, the Scale Subcommittee of the Yards and Terminals Committee gave attention to these amendments of your body and found them satisfactory. The amendments were proposed for adoption by the Association of American Railroads, were transmitted through the usual channels, and were officially adopted by that organization for application to vehicle scales in railway service. Thus the railroads have made their requirements conform with yours.

As a result of all this effective cooperation, I am now very happy to be able to announce that the tolerances for railway track scales and vehicle scales of the National Bureau of Standards and of the Association of American Railroads are in entire accord and that only slight amendments would be necessary to bring the National Conference tolerances in conformity with these codes. Since the adoption and application of divergent tolerances by agencies having the same ideals would be an extremely unfortunate state of affairs, we think that the uniformity which has now been achieved is highly satisfactory.

I feel that I should not dismiss questions of tolerances without remarking in passing that the Bureau has revised its tolerances on heavy test weights. I need not say more in this relation since Ralph W. Smith of our staff will include all necessary information as to this matter in the paper which he will present this afternoon.

Many of you are cognizant of the fact that it has not been possible for the National Bureau of Standards to be represented at the meetings of State associations of weights and measures officials during the past year. We have been obliged to decline invitations to participate in every instance. I desire at this time to emphasize that the Bureau considers that this form of cooperation with you is highly desirable. I would like very much to authorize attendance at all of these meetings. The situation is solely due to the fact that money which can be expended for travel has not been available.

Travel funds are "earmarked" for this purpose. A special allotment is made to the Bureau, and this amount may not be exceeded regardless of the total funds at our disposal. There are many demands upon us for services involving expenditures for travel. I must so parcel out the funds that these demands can be met in the order of their urgency. You will readily appreciate that this is not an agreeable task.

I have been liberal in my allotment of available travel funds to the Division of Weights and Measures. I asked this Division to make an estimate of its needs for the present fiscal year, and they requested a sum that it was out of the question to grant in full. However, I allotted to this one Division travel funds equal in amount to that for the other eight technical Divisions combined. And when I had given all the travel money which could possibly be spared, Mr. Holbrook and Mr. Bearce went into executive session with their obligations. You see they are obligated to many expenditures. Three railway track scale testing equipments and the vehicle-scale testing unit must be operated—this work must go on. When these demands were estimated they found there was no money available for attendance at the State meetings. So this activity was regretfully canceled.

I may say that the actual expenditures for the year show that their estimates were conservative. Railway Track Scale Equipment No. 2 is now laid up at Clearing and will not be started out on a new itiner-

ary until the new fiscal year begins; Equipment No. 1 is being expedited into Clearing and will not be started out again until after July 1. The Vehicle-Scale Testing Unit will discontinue operations after the testing program in Chicago is concluded. Three of our inspectors are cooperating by taking periods of annual leave. After all these economies are effected, Mr. Holbrook tells me that he hopes to have a balance of $9 on June 30, the end of our fiscal year.

The Bureau has been represented at two weights and measures schools of instruction and at one State meeting during the year; however, no Bureau travel funds were expended in these cases. The organizations in question found it possible to assume the expenses of the men. Please do not misunderstand my purpose in mentioning this. I merely cite these instances so that you will understand that there have been no exceptions to our general rule. I am not for a moment suggesting that your organizations should pay our travel expenses. I do not think that it is incumbent upon you to do so, and I realize that in most instances it is wholly out of the question.

If any of you have been inclined to feel neglected or aggrieved because we had to decline to attend meetings in which you were interested, I hope this frank exposition of our situation will have the result of wholly dissipating this feeling. In closing, I want to assure you that representation at State meetings will be resumed just as soon as it is practicable to do so.

ROLL CALL OF DELEGATES

The Chairman. Gentlemen, you will see by referring to the program that the reports of State delegates have been deferred this year until Friday morning. However, we do wish to have at this time a roll call of the delegates, in order that we may be able to identify each other. And so I shall ask the delegates to rise as their names are called and to remain standing until the names of all the delegates registered from that State have been called. This group will then be seated at the sound of the gavel, and the same procedure will be followed successively with the other States.

I will ask Mr. Smith now to call the roll.

(The roll was called by Mr. Smith in the manner outlined.)

(At this point the Chairman read a letter from S. T. Griffith, Chief, Division of Weights and Measures, of the city of Baltimore, who was unable to attend the Conference on account of illness.)

WEIGHTS AND MEASURES REQUIREMENTS OF THE FEDERAL FOOD, DRUG, AND COSMETIC ACT

By W. S. Frisbie, *Chief, Division of State Cooperation, Food and Drug Administration, United States Department of Agriculture*

When the present speaker appeared before your Conference in 1935, the Copeland bill then before the Congress was the subject of discussion, particularly those sections of the bill which required a statement of quantity of contents on food in package form. That discussion drew one important difference between the act of 1906 and the bill, i. e., in the use of the word "accurate" in requiring the quantity of contents declaration on such packages to be accurately made. This provision is now a law, and with it those sections of that bill which declared food to be misbranded if its container was so made,

formed, or filled as to be misleading. Furthermore, these requirements now apply or will apply not only to food but to drugs, to therapeutic devices, and to cosmetics. The effective date of the enforcement of this act is June 25, 1939. In anticipation of the question which may be asked, the Lea bill, which amends in some particular the Federal Food, Drug, and Cosmetic Act, and which has passed both the House and the Senate and is now in conference, contains no provision affecting in any manner those sections of the act which relate to net weight declaration or to misleading shape or fill of container.

For purpose of convenience, this subject matter will be divided into three parts, as follows: (1) The application of the law to the label statements of quantity of contents on packages, (2) to slack filling of packages, and (3) to the type or shape of container.

In the first division, there is perhaps not much to add to what has already been said or written relative to the law of 1906, although there are one or two improvements, so far as the ultimate consumer is concerned, which are worthy of mention. Not only does the new act require that an accurate statement of the quantity of contents be made, but also that in all cases the statement shall be intelligible and informative to the consumer. This is manifest by reading section 403 (f), which follows immediately that section requiring the quantity of contents statement as well as the name and place of business of the manufacturer, packer, or distributor. This section reads—prefaced by the clause that a food (or drug, or cosmetic) is misbranded:

> If any word, statement, or other information required by or under authority of this Act to appear on the label or labeling is not prominently placed thereon with such conspicuousness (as compared with other words, statements, designs, or devices, in the labeling) and in such terms as to render it likely to be read and understood by the ordinary individual under customary conditions of purchase and use.

For years the Department has recognized that the term "plain and conspicuous" in the act of 1906 did not represent a precise or mathematical yardstick, since the legend might be both plain and conspicuous and by a labeling arrangement, either by design or accident, fail to acquire that prominence which the spirit at least, if not the letter, of the act seemed to require. The legislative committee was approached when this bill was in Congress, and the result was the drafting of section 403 (f) which I have just read. In other words, not only must the quantity of contents statement be plain and conspicuous, but prominent with respect to all other labeling, whether mandatory or voluntary, which appears on the label and this means prominence in type as well as in position on the label. Certainly, that is our interpretation. The regulations which have been promulgated under section 403 (e) which require the declaration of quantity of contents are not different from those which have been in effect for many years. The same language as to variations and exemptions appears in this new statute, and the same regulations have been adopted. The exemptions as to small packages, that is, exemptions from any declaration of quantity of contents, apply in the case of food packages containing less than one-half ounce avoirdupois as before, and to packages of liquid containing less than one-half ounce instead of 1 fluid ounce as before. In the case of cosmetics, exemptions apply to packages containing less than one-quarter ounce avoirdupois, or less than one-eighth fluid ounce. No exemptions have been extended to any size package

of drugs, so far as weight or measure is concerned, but in the case of numerical count for foods, drugs, devices, or cosmetics, the exemptions apply where less than six units are contained, provided they can be seen in the unopened package.

It may be well at this point to emphasize the fact that we interpret again the language of Congress with reference to reasonable variations as being of a general rather than a specific character. The question has many times been raised as to what specific tolerances will be allowed on this commodity or that article, to which we have invariably replied that, owing to factors of varying degree throughout the country which may affect the net contents of a food packed under the best of conditions, it is impossible to establish with any degree of uniformity those tolerances which would be equitable in all given cases. Furthermore, experience has taught the Department that some manufacturers, fortunately few, are disposed to aim at a tolerance rather than the full declared weight. Thus the nominal amount minus the tolerance, rather than the weight declared, becomes the amount of the commodity delivered, to the detriment of the honest manufacturer and the ultimate consumer.

The quantity of contents in the case of liquids shall be expressed in liquid measure; if the food is a solid or semisolid or a mixture of these, in terms of weight, provided that dry commodities may be declared in terms of dry measure. An exception, of course, is made where these statements in terms of weight, measure, or numerical count, or a combination of them, in common use by consumers to express the quantity, actually give accurate information as to the quantity, in which event such commonly used terms may be employed. The statement may express a minimum quantity of contents or an average quantity of contents, but if the latter, then there shall be no unreasonable shortage, even though such shortage is compensated by packages above the declared weight. If the declaration is in minimum terms, then the package shall not fall below the minimum declared, and excessive variations above will not be countenanced. Quantity of contents in terms of numerical count must always be informative, and exemptions as to such declarations are made with a count of less than six, provided all the units can be readily observed in the unopened package.

The second division of this subject is of interest—the so-called slack-filled provision. Probably, the first bill was introduced in Congress in 1919, and for nearly 20 years successive bills were introduced, passing either the House or the Senate, but never receiving approval of both Houses. This principle did receive recognition, however, in 1930 when the McNary-Mapes amendment to the act of 1906 was approved, establishing for certain canned goods not only a standard of quality but also a standard of fill of container. Some of the State legislatures gave attention to the obvious necessity for slack-filled provisions, notably Nebraska, nearly 20 years ago, followed in more recent years by Alabama and North Dakota, and still later by Louisiana, when that State adopted most of the provisions of the Food, Drug, and Cosmetic legislation then before Congress. Two of these States—Alabama and North Dakota—have made definite attempts to establish limits or tolerances for slack filling, for example, Alabama, by regulation, requires packages such as oatmeal, rolled oats, rolled-oat groats, and other oat flakes to be at least 85 percent

filled with the food they purport to contain, and foods such as corn flakes and similar products at least 75 percent filled, and in the case of whole and ground spices, packages of less than two ounces, 70 percent filled, two to three ounces, 75 percent filled, and packages of three ounces or more must be 80 percent filled. North Dakota first ruled that spice packages must be 80 percent filled to be in satisfactory compliance with the law, later determining to solve the problem in a more satisfactory fashion. The most recent ruling sets up a maximum size of container, depending upon the weight of the spice.

The Food and Drug Administration has given a preliminary study to the problem of slack filling, but so far no regulations have been issued, nor similar announcements made. The act itself provides authority—continuing the principle of the McNary-Mapes amendment—to establish a fill of container for all foods in package form, and already hearings on fill of container for canned apricots, pears, cherries, and peas have been held. There seems to be the impression on the part of the trade that an 80 percent fill (for spices) is satisfactory and equitable, but whether this is equitable under all conditions for various containers is a question which the Administration is not prepared at the present time to decide. We must also remember that this provision extends to drugs and cosmetics—a new field so far as net weight is concerned.

The third part of this subject relates to deceptively shaped containers. In particular, section 403 (d) of the act declares a food (or drug or cosmetic) to be misbranded if the container is so made, formed, or filled as to be misleading. There exists no authority anywhere in the act to establish a standard system of measurement for deceptive containers such as exists in the fill-of-container clause in connection with food standards. Here again, North Dakota has given pioneer consideration to what may be regarded as a deceptive container. That State has ruled that bottles and similar containers of 2 to 4-ounce capacity whose ratio is 1.5 or less are normal and those whose ratio exceeds 1.8 are deceptive and represent violations. The ratio here is the ratio between the apparent volume (including the volume of the panels) compared with the capacity of the container; in other words, its apparent bulk divided by its actual capacity. One of the representatives of the industry has pointed out that this ratio is dependent upon the capacity of the bottle as well as the shape and contents, that the ratio should be constant for any given size, and has suggested a formula in which the sum of the volume of the glass plus the volume of the panels raised to the three-over-two power is divided by the actual capacity. We have applied both of these formulas in the measurement of a number of bottles and find that the North Dakota formula is acceptable, provided the capacity of the bottles is within the order of 2 to 4 ounces, and that the other formula is based upon the assumption that the bottle is cubical in shape. Neither formula is constant when bottles of very small or very large capacity are included, or in the latter where they depart from a cubical shape. Here again no decision has so far been made and, regardless of any mathematical expression, we must still take into consideration the actual impression created in the mind of the potential buyer, whether or not, under ordinary or usual conditions of sale, the container is actually so shaped as to be misleading.

In classifying the kinds of deceptive containers we have the case of glass bottles, those made of thick glass, those with deep panels, those of excessive and unnecessary height, those with deeply indented bottoms, and those of irregular or particularly unusual shape. We have similar situations in the opaque glass jars, with the additional problem of the raised cover. In the cardboard, fiber, and metal cartons, we have false bottoms as in candy boxes, indented bottoms such as those used for ice cream and cosmetics, raised covers as found in face-powder boxes, and in all types of containers we find the oversized cartons and excessive wrappings. We also regard the container which is made with cellophane or other similar material of such color as will impart a deceptive appearance to the food contained therein as definitely outlawed by this section of the act. For example, a carton with a colored window of a red hue will make the green or unripe tomato appear perfectly ripe. It may, in passing, be pointed out that such food may not only be misbranded but adulterated, by reason of that section of the act which declares food to be adulterated if damage or inferiority has been concealed in any manner. The feasibility of demonstrating to this Conference examples of deceptive containers has been considered and solved by extending to the members an invitation to visit the offices and laboratories of the Food and Drug Administration here in Washington, where these exhibits of deceptive containers may be seen and studied, and explained by those technically familiar with weights and measures problems. The members are therefore cordially invited to visit the Administration at any time during the Conference and to make contact either with the speaker or with S. C. Rowe, who is the Administration's expert on this subject.

As to the policy of this Administration when the act becomes effective, it is our purpose to insist upon a strict compliance with the terms of the act which relate to the manner of declaring the quantity of contents on foods, drugs, and cosmetics in package form, and to see that this is declared in terms that are intelligible and easily understood by the ultimate consumer. The mandate of Congress is clear; accurate information on this score must be conveyed to the purchaser. It will be our purpose to study thoroughly the situation with respect to slack filling of packages, whether through the establishment of fill-of-container standards under that section of the act, or through the issuance of regulations, and to determine in an equitable fashion what containers are shaped or made so as to be misleading. While we are wholly sympathetic with the movement toward standardization of packages, there is no authority contained in the Food, Drug, and Cosmetic Act to undertake the education of the consumer and the manufacturer, but it is always our aim and purpose to enforce the law in such manner as will promote honesty and fair dealing with the consumer.

COORDINATION BETWEEN DEPARTMENTS IN RELATION TO INTERSTATE SHIPMENTS

By C. E. Tucker, *Chief, Division of Weights and Measures, State of California*

Mr. Chairman and members of the Conference: I am responding today to the invitation of F. S. Holbrook, secretary of the National Conference on Weights and Measures, to discuss the coordination of efforts of the various State departments of weights and measures in

relation to the shipment of commodities in interstate commerce, with particular reference to goods packed in containers.

At the outset, I wish to call your attention to the use by Mr. Holbrook of the word "interstate" when he refers to commerce. By using "interstate" instead of "intrastate", he indicates that he wishes a discussion of the problem as it relates to commerce between the States. In that field, I am forced to speculate. If he had said "intrastate" commerce, I might offer more direct information, for in California we have a law which prohibits the use of false and misleading containers. However, the operation of that law does not extend beyond our State, and that is where our problem begins. To make my meaning clear, it will be necessary for me to review briefly the situation in California.

Section 10 of the California Net Container Act provides:

> The term container used in this Act is hereby defined to be any receptacle or carton into which a commodity is packed, or any wrappings with which any commodity is wrapped or put for sale, or to be offered or exposed for sale. No containers, boxes, or baskets wherein food products or other commodities are packed shall have a false bottom, false side walls, false lid or covering, or be otherwise so constructed as to facilitate the perpetration of deception or fraud.

In other words, our law demands that packages must be honest in their declarations of quantity. If they are extra-large packages, they shall not be misleading in their construction so as to convey by design a greater amount than actually packed. They must have no trick construction within or without to deceive the eye and drain the pocketbook or confuse the consumer.

This is a relatively new law but an old principle. Our experience has proven it to be a popular law with consumers, and to be acceptable to those manufacturers, processors, packagers, and others who are only interested with legitimate trade and honest trade practices. However, this law is very severe on the evildoer, the cheaters, the tricksters who are not content to make a fair profit on the sale of the commodity, but who must dip further into the pocket of the consumer and steal from him by tricks and fraudulent devices.

We began to enforce this law, not only by officials of the Division of Weights and Measures in the California Department of Agriculture, but also through the 58 county sealers and their staffs.

First, we gave the new law considerable publicity so that fair warning would enable those violators who wished to avoid trouble to rid themselves of the objectionable merchandise. After a reasonable time, a few months, we moved for prosecutions.

We found that manufacturers were taking advantage of special occasions to push their deceptive packages. We found that the California public is sentimental when it comes to purchasing a gift box. That was particularly true on such occasions as Christmas, Easter, Mother's Day and other holidays. It just didn't seem right to pick up a box of candy intended for mother on Mother's Day and inspect it carefully to determine if it was only half full or whether it was loaded down with chocolate-colored paper dividers to give the impression of a bountiful box. No, the buyers were thinking of the warm reaction their mothers would get when the box arrived at home. In such a frame of mind, the buyers were ripe for the plucking so far as the tricky-package people were concerned. Furthermore, our experience showed that the plucking was good. Now there is no more plucking, at least we know of no more of it.

We took several boxes of Mother's Day candy to our laboratory. We examined them and found them grossly unfair. We found them underweight. We found them containing but one very light layer, whereas the boxes gave the impression of two layers. We found them decorated with bright ribbons and tissues, very gay, very attractive, but very deceptive and very fraudulent. It was costly to buy paper at $1.00 per pound.

We confiscated a large quantity of such merchandise, removed it from the shelves of dealers, and took it to our storerooms. We did not move to prosecute for we accomplished the result in a better way.

Almost at once we began to hear from the interests involved. We heard from the California distributor. We heard from the Eastern manufacturer. The distributor passed the "buck", so to speak, to the manufacturer, maintaining that he had purchased the goods in good faith and that the responsibility was with the original seller, a thousand miles away.

The Eastern manufacturer, at first very angry that his goods had been confiscated, threatened and blustered but finally came down off his high horse and promised to mend his ways. He wouldn't put up candy in such deceptive boxes any more. He wanted to cooperate with the weights and measures officials, and he was surprised that such a law existed and further surprised that, even though it existed, it was being enforced. He said such packages were being sold all the time in other States. It has always been done that way with holiday goods.

The result was that all such candy was taken out of California and sent back east by ship. I rather imagine that the hold of that ship was rather crowded, too, for California had been virtually flooded with this quick-sale, shoddy holiday confection.

By this time the word was beginning to get around that the California weights and measures officials meant business in their enforcement of the law against deceptive packages. However, we pressed our drive and soon discovered that California was virtually the dumping ground of the Nation for fake boxes of bath and face powder.

I have in my hand one of these powder boxes. You will see that it gives the impression that the powder content is several inches deep. At the prices quoted, it would have been a genuine bargain, had it been full. Imagine the deep chagrin of milady when, at home, she opened her box to find less than an inch of powder. Such things make women very unhappy. Well, we cleaned up that mess and another shipload of fake stuff went back east.

At Christmas-time we found that a manufacturer who specialized in glazed fruits was selling bulging bowls of dainties, beautifully adorned with ribbon, holiday greetings, and that sort of thing. The bulging dome of fruit, however, was caused by the insertion of a generous pasteboard dome. About all of the fruit in those bowls was that to be seen on the top layer, for the rest was pasteboard. Here was another instance of a manufacturer taking advantage of the sentiment of a holiday. The manufacturer in this case was prosecuted and paid $1,000 for violating the law. Now he submits his packages to the division well in advance of the selling season and gets an official approval before he sells a single pound of glazed fruits.

These confiscations and this $1,000 fine attracted national attention. Many articles were written about the law. We saw to it that newspapers and picture syndicates were provided with articles and pictures

to explain what was being done and why. To say the least, the campaign has had a splendid reaction in California. It was worth while and it is being continued. Now we must try to interpret these circumstances into the field of national action, in interstate commerce.

We encounter complications at once. Only Congress can control interstate commerce. It cannot be done by Executive order or by some commission. Standardization would require carefully considered legislation. In these days competition is very keen. Millions and millions of dollars are being spent in advertising and sales promotion. Perhaps a drastic change in a package form might require the entire rebuilding of a factory or an entire realignment of a sales policy involving great sums of money. However, the day is coming, and speedily, when business men will have to face this problem for the public is consumer-conscious and will not tolerate this banditry by boxes, regardless of how pretty they may appear or how sweet they may smell.

In that connection, I was interested in an article in a nationally circulated trade magazine in which packages were discussed. It listed some of the mistakes made in packaging goods, but nowhere in the article was the fraudulent package mentioned. No mention was made of larcenous dividers, nothing was said about truth in packages, and that, to my mind, is an important problem facing the manufacturers of many products if they are to maintain and increase sales. We must call this matter to their attention at once, and forcefully, so that they may have a fair and rightful opportunity to adjust the difficulty within their own industry.

We should also call this matter to the attention of the National Council on State Governments, so that, in the absence of strict Federal legislation, the legislatures of the various States can get into this field and follow California, if they find it advisable. This is a National problem in the nature of public business, in terms of personal items, demanding the consistent support of 48 States based on principle. We can also keep this subject alive in our discussions, and we can help in our relations with other groups.

We cannot legislate. We cannot make rules, but we can point out to those in authority the alarming evils of this situation and commend the benefits that could come if corrective and effective steps were to be taken. We can do this not only for the protection of the consumer but also for the protection of the legitimate, conscientious manufacturer who wants to compete on a basis of quality and quantity rather than on a shyster, stealing basis involving deception and double dealing.

It is a tremendous problem, but it must be solved.

TOLERANCES

By M. J. J. Harrison, *Supervisor of Scales and Weighing, Pennsylvania Railroad*

Mr. President and gentlemen: The privilege of appearing before you has so often been mine, and the capacities in which I have appeared have been so numerous, that I feel that it might be well at the outset this morning to identify my present status. My appearance this morning, if you please, is that of an individual—of one whose daily work in 13 States and the District of Columbia is, at the very least, parallel to your work—of one whose daily contacts with you and your work have been and are very close—and of one who has

attained a familiarity with the aims and objects of the National Conference on Weights and Measures and is sincerely sympathetic therewith.

My topic this morning is of my own selection. Its choice came about as a result of some relatively recent personal experiences. Some of you, and especially some of the senior members of the Conference, will naturally wonder what can possibly be said about tolerances that has not already been said, and well said. I have felt that way myself. However, "strange as it may seem," or "believe it or not," I have discovered that there are many people—people whom we have a right to expect to know—who talk glibly about tolerances but have no intelligent conception of them or of their proper application. So definite a statement as I have just made is bound to be a shock to at least some of you, but no other conclusion can be drawn from some of the things that have come to my attention.

Those of you gentlemen who attended the early sessions of the National Conference on Weights and Measures—then known as the Annual Conference on Weights and Measures—or who have read the reports of those sessions, will recall some of the primary reasons for the establishment of the Conference. Chief among those reasons was the obvious desirability of (1) uniform laws and uniformity in their administration, and (2) uniform specifications and tolerances, and uniformity in their enforcement.

In that era of weights and measures work, each official had his own ideas as to tolerances. He knew that 100 percent mechanical perfection was unattainable, but there were few published tolerances, and certainly there was no substantial uniformity in tolerances as applied in different jurisdictions, and I might even go so far as to say that there was little uniformity in tolerances as applied by different inspectors in the same jurisdiction.

When the Conference tolerances were initially adopted in 1916 and promulgated by the National Bureau of Standards in its now superseded Circular No. 61, they were accepted thankfully. We had then, for the first time, a set of tolerances recommended for uniform application to commercial apparatus, and those tolerances were the result of the joint effort of the members of the Conference. It is a tribute to both the Conference and to its Committee on Specifications and Tolerances that its material has had such remarkably uniform acceptance. But why is there not 100 percent adherence to it? My observation has suggested certain thoughts, which are advanced at this time in the hope that they will be found of some value, not only in your activities and deliberations as the National Conference on Weights and Measures but also in your consideration of problems that arise in your own daily work.

First, what is "tolerance"? Your dictionaries will tell you that, among other things, it is a disposition to allow or permit something which is not wholly approved—an attitude of forbearance with respect to something with which one is not fully in sympathy.

On the other hand, what is "a tolerance?" Your Handbook H22 contains an excellent statement of the purpose of tolerances, especially from a weights and measures administration point of view, and several definitions have been proposed, all of which are based on the conception of a tolerance as a specific quantity. This conception must necessarily be observed, since the tolerances of any given system must

be mutually consistent and interdependent, or else they will be of necessity disregarded.

Some 8 or 9 years ago, R. W. Smith of the National Bureau of Standards prepared a most comprehensive discussion under the title "Tolerance and Tolerances." This discussion was initially published in the January 1931, issue of the Scale Journal, and is commended to the careful study of all of you who have not already read it; it may be reviewed with profit by those of you who have previously read it. I have no intention of plagiarizing Mr. Smith's discussion, but I shall necessarily have to repeat here some of the thoughts that he suggested.

In a recent written discussion of a question involving metrological tolerances, I stated the following as a basis for their construction: That, with respect to any given type of metrological device, the formal tolerance values should be predicated upon—(1) the economically available refinement of manufacture of that type; (2) the refinement of determination sought through the customary use of that type, and (3) the practical conditions of use and maintenance of that type. These are principles that are fundamental, and from personal observation of some twenty years, I aver that sight of these principles has never been lost in the work of this Conference, except on those fortunately rare occasions when a motion from the floor, adopted in the course of debate, has had an entirely unforeseen effect upon an item of the tolerance structure—an effect which might easily have been avoided if the proposal had had Committee study and consideration in advance of its presentation.

When all is said and done, tolerance structure values are controlled by the inflexible laws of mathematics and not by personal prejudices. Since this is axiomatic, I respectfully submit the inquiry—why should we discover among the supposed intelligensia of the weights and measures world such incongruities as the following?

1. An official who publicly adopts standard tolerances for commercial apparatus, and then requires his subordinates to use working standards of, to say the least, doubtful accuracy, and testing technique which could not possibly result in determinations with a precision comparable to the tolerance values said to be applicable.

2. Another man who alleges that the Conference tolerances are unduly large, since advantage will be taken of them by the unscrupulous. Accept such allegations only with much salt; the people who originate them are frequently less well-informed in the matter than are you, and may often advance their specious theories from selfish or ulterior motives.

3. Another official who, upon demand, can produce a printed table of standard tolerances, but cheerfully and almost proudly admits that they are so small as to be impracticable of application. Such a man probably lacks proper observational training.

4. Another official who wears an appearance of great wisdom, and observes loudly that he recognizes no tolerance whatever—that "they have to split the graduation."

5. Another official who alleges that the Conference tolerances are unduly large, his reason therefor being that he rarely or never finds a device which he has to condemn. Investigate this man's methods before taking him seriously; it will probably be found that his methods are not adequate to develop the actual errors of the equipment which

he tests. In some instances it will even be found that his tests are rarely or never made of the equipment in the condition in which it is found—cleaning and adjustment being required in advance of the official test. This procedure amounts to application of the maintenance tolerances as adjustment tolerances—an entirely different and totally unwarranted application. It has in its favor only the fact that, at the time of the official visit, the equipment is left in reasonably accurate condition; there is no control of either the equipment or its accuracy under actual service conditions.

It is this last-named practice which I personally find most annoying. We set up and publish maintenance tolerances, and then do not always apply them as maintenance tolerances. That upsets the orderly relation which should exist. It is the generally accepted view—I wish it were uniformly accepted—that, having published a maintenance tolerance, the errors of a device under service conditions shall not exceed those tolerance values. Routine tests should be considered as a means of learning whether those errors, under practical conditions of use, exceed or do not exceed the applicable tolerance, and such tests should be made of the device in the condition in which it is found operating by the inspector at the instant of his arrival.

If the device is new, or if repairs or adjustments are necessary, then we have our adjustment tolerances—usually one-half of the corresponding maintenance tolerances. The difference between adjustment tolerance values and maintenance tolerance values is, of course, to provide for unavoidable mechanical deterioration and also to some extent for other causes of inaccuracy arising from practical conditions of use.

The ideal situation, of course, would be for a device, at the time of one test, to be left in such accurate condition that, when next tested in an "as found" condition, its errors will not exceed the applicable maintenance tolerance.

I do not cite these instances to be pessimistic; far from it. But, rare though they be, there are enough of them to attract attention. Obviously, such digressions from orthodox procedure constitute neither honest nor intelligent application of weights and measures laws and regulations. They do not convince a user or owner of a commercial weighing or measuring device that his neighbor—possibly his competitor—is subject to the same requirements that he is.

We come here annually to discuss matters of common interest. We put forward our individual best feet. We speak proudly of how well we are doing our job, both individually and collectively. Why, then, when we go home, should some of us figuratively shrug our shoulders and say, "Oh, well! Those tolerance tables are all very well in theory, but I'll just use my own judgment." Whom are we fooling by adopting that course? Just ourselves, and, to only a limited extent, the people who must depend on us to tell them if the equipment over or by means of which they buy or sell is satisfactorily accurate.

I cannot dismiss this part of my remarks without mentioning one other source of occasional criticism of Conference tolerances. I refer now to the manufacturer who blandly claims such superiority for his product that tolerances of the order of those already in effect are not required. You should have no trouble in deciding for yourselves if such claims are as altruistic as it is hoped you will believe them to be.

A few days ago I found a letter with reference to tolerances, written some 18 years ago by a friend of mine. In it he said, and I think he would say the same thing today—

> The trouble is that everyone is willing to go into these matters just as far as he can understand them easily, but he at once declares impractical that which requires a little cogitation to understand.

My personal plea to you at this time may be summarized as follows:

1. Recognize the value of the carefully considered proposals of your own Committee on Specifications and Tolerances.
2. Recognize the necessary interdependency of the various tolerance values, and that an inconsistency in one spot throws the entire structure out of gear, so to speak.
3. Apply your adopted specifications and tolerances strictly as written; do not tolerate errors which exceed the value of the uniform adopted tolerances; use a testing technique which is adequate to disclose the accuracy or otherwise of the device under test under practical working conditions; and be sure that your own working standards are of proper authenticity.
4. Do not disregard a stated tolerance value simply because you individually fail to understand it.
5. In the adoption and enforcement of specifications and tolerances, be tolerant only to the extent that, for the sake of uniformity, you "tolerate" the views of the majority, instead of setting up an artificial claim of having a local condition that requires a set of tolerance values differing from those already adopted by this Conference.

If you will observe these suggested precepts, you will probably better conditions in your own jurisdictions, you will in so doing increase your value to your own State or community, you will especially simplify matters for every organization engaged in any way in intercommunity or interstate commerce, and you will do your part in advancing the standard of accuracy on which the smooth flow of our National commerce so largely depends.

RETAIL SALE OF COMMODITIES BY WEIGHT OR MEASURE

By C. L. Klocker, *Inspector of Weights and Measures, State of Connecticut*

The title of this paper suggests a serious and timely matter, considering that at the present time most of the States allow the retail sale of commodities by both weight and measure, which puts a doubt in the mind of the consumer as to whether or not he is receiving the correct amount by either method. To my mind, all commodities should be sold at retail by weight.

Let us consider some of the advantages and disadvantages of the retail sale of commodities by measure, using as an example the lesser of two evils, the struck measure and its usual subdivisions. Commodities, of course, refer to fruits, vegetables, and other products and we may consider them as packed in standard containers.

About 1836 the Federal Government established the bushel as containing 2,150.42 cubic inches, and this cubical content of the bushel has been consistently maintained up to the present time, including the Standard Container Act of 1928. This act refers to specified types of containers, namely, round-stave baskets, splint baskets, or hampers for fruit and vegetables, and specifications for the various sizes of containers have been issued by the United States Department

of Agriculture within the provisions of this law. As you know, we now use these containers in interstate shipments as required by this act. This in itself is all right, but why should the Standard Container Act of 1928 be enforced after the wholesaler in the State to which the goods are consigned receives these commodities? The retailer in the market, when he bids on a quantity of various commodities, invariably picks up several of the containers to determine the approximate weight of each container. He knows that in the State of Connecticut, at least, he will be unable to sell these commodities to the consumer by measure because of the fact that the average consumer in the State of Connecticut is well aware that a pound is constant and the amounts arrived at by the use of a bushel or its subdivisions are variable. A container is not only variable to the consumer; it causes trouble for any weights and measures official. I defy anyone to look over a dozen or more containers of approximately the same size and shape and to determine whether or not they contain 2,150.42 cubic inches, 2,000 cubic inches, or 2,200 cubic inches, or any other definite amount.

We are always endeavoring to educate the consumers to investigate and see for themselves the amount they actually purchase. If it is impossible for a weights and measures official to determine the approximate cubical content of a container by observation, how can we expect the consumer to determine the amount, when we have such a difficult time to educate him in the practice of reading a scale which is right in front of him, and which any child could look at and ascertain how much weight he is receiving? We cannot expect the consumer to go into a store carrying several sealed measures in order to determine the amounts of the commodities he desires to purchase. That, of course, is impossible. Neither can we expect the consumer to use the chart put out by the United States Department of Agriculture, which explains how to measure and then determine the content of any container. If any one of you present has seen these charts, and the directions contained thereon for determining the size of a standard container, and has tried to use them, you have found that, in most instances, it requires the services of an engineer, statistician, and mathematician, and approximately one-half hour of measuring and figuring, in order to determine the cubical content of a particular container.

I will grant that scales go out of order as will any mechanical device, but the activity of the weights and measures officials of today makes it reasonably certain to any consumer that if a scale is on zero before the commodity is weighed, and the scale shows that it has been sealed by a weights and measures official, he is receiving the weight indicated by the scale.

The State Department of Weights and Measures in Connecticut is and has been advocating the sale of all commodities at retail by weight or numerical count, and will continue to do so indefinitely, I hope. To my mind, the sale of commodities by weight or by measure is not a subject for debate; it is a matter of common sense. It is one of our duties to protect the consumer and to aid the consumer in protecting himself, and the most logical way of accomplishing this end is the sale of commodities by weight.

Take the sale of clams for example: Put 3 bushels of clams in a barrel so that the barrel is level full; let it stand for one-half hour and that barrel will fail of being full by one peck or more. Take these clams from the barrel and put them into three bushel measures and

they will fill the measures level full. This is an exceptional case perhaps, but it is true of other commodities as well. In filling, a container can be filled loosely or packed tight, so that in the one instance the consumer will receive less and in the other instance will receive more, all depending on how the container is packed. However, if the commodity is placed on a scale and the scale reads 10 pounds, the consumer knows by reading the scale that he is receiving 10 pounds.

Along this line, a standard container, approved by the United States Department of Agriculture as containing 1 peck, was introduced into the State of Connecticut a short while ago for the sale of potatoes. This container conformed with the rules and regulations of the Department of Agriculture and contained the required number of cubic inches. However, the weight of these packages was from 12 to 12½ pounds, including the weight of the container. This so-called peck of potatoes was being sold for the same price as a 15-pound peck. According to the Federal law, this container was legal, and State weights and measures officials could not directly prohibit its use. However, there are more ways than one of taking care of such matters, and needless to say, these containers were used for only a few days in the State of Connecticut and have not been used since.

Another disadvantage in the sale of commodities by measure, rather than by weight, is the fact that after the retailer has emptied the container, he has the idea that it is a legal measure, and if the opportunity affords itself, he proceeds to use it as such. This is not a legal measure in any sense of the word, according to any State or Federal law, yet the retailer is under the impression that it is a legal measure. This just makes one more job for the State and local weights and measures officials, as it is necessary that they watch to see that these containers are not used over again.

During a recent discussion on this subject, I was informed that the State of Connecticut, during a previous session of the legislature, passed a law for the bushel measurement of a certain commodity. As you know, the State Department of Weights and Measures cannot control the legislature in these matters, and of course, this action did not have our approval. On the other hand, it does not make a great deal of difference in view of the fact that Federal legislation supersedes State legislation, and such a bill might just as well be passed, as it conforms to a similar Federal law. However, we already have a means of discouraging the retailer from selling this particular commodity by measure.

I have not been in the weights and measures business for any great length of time, and I am not a stockholder, nor am I interested in any scale company, but I like to see the amount I receive when making purchases of any commodity, and I believe the people in the State of Connecticut feel the same way when making their purchases. This, of course, is merely my opinion, but at the National Conference on Weights and Measures held in Washington in 1935, L. C. Carey of the United States Department of Agriculture, in his paper entitled "The Byrd Bill to Consolidate Federal Standard Container Legislation", stated in part, in speaking of a particular section of the Byrd bill—"This is the section which has been devised in an attempt to make it very sure that the provisions of standard container legislation shall not interfere with State laws or city ordinances respecting the sale of fruits and vegetables by weight." This shows that the Depart-

ment of Agriculture, through Mr. Carey, while working on the standardization of containers, evidently believes in the retail sale of commodities by weight, or they would not have advocated this particular section of the Byrd bill.

In a circular of the National Bureau of Standards entitled "Legal Weights (in Pounds) Per Bushel of Various Commodities," issued while S. W. Stratton was Director of the Bureau, it is stated—"It is important that it be distinctly understood whether a bushel by volume or a bushel by weight is the amount intended to be delivered or received. Since amounts determined by weight are much more nearly accurate than similar amounts attempted to be determined by measure, transactions upon a basis of weight are much to be preferred to those upon a basis of measure, and therefore, it is recommended that insofar as possible, all purchases and sales be made by weight as is now the practice in wheat transactions." Therefore, since the Department of Agriculture and the National Bureau of Standards, upon whom we rely for all sorts of information, advice, and methods of procedure, advocate the sale of commodities by weight, far be it from me to refute their findings or the result of their experiments and study.

In other words, the State Department of Weights and Measures for the State of Connecticut is in wholehearted accord and agreement with the United States Department of Agriculture and the National Bureau of Standards in regard to their evident desire that the sale of commodities at retail be by weight, always keeping in mind the variable bushel and the constant pound.

I believe that this matter should be taken up and acted upon at this Twenty-ninth National Conference on Weights and Measures, as it is directly in line with two of the objects of the Conference, namely, uniformity in weights and measures procedure throughout the country, and protection for the consumer.

THE VALUE OF WEIGHTS AND MEASURES RADIO PROGRAMS

By A. Edward Snyder, *Inspector of Weights and Measures, City of Terre Haute, Ind.*

Mr. President, members of the Conference, and guests: Millions of words have been spoken about weights and measures, thousands of words have been printed, but only comparatively few words have been broadcast by radio; therefore the radio is a fertile, virgin land to be utilized and developed to spread the truths about weights and measures.

The subject of my paper should be divided into the following four parts: First, the necessity; second, the possibilities; third, the material; and fourth, the results.

If there was ever a time when there was a dire necessity for the understanding of weights and measures laws, it is this time. This necessity has been brought about, among other things, first, by keen competition, or by selling at close profit, which is a direct result of the depression, recession, or whatever you want to call it; and second, this weights and measures knowledge is necessary because today, in most instances, the general public must make every penny count in order to have enough money for essential needs.

Charles C. Neale wrote me in reference to our discussion on weights and measures radio educational programs, as follows:

> Any way that you look at it, it is a real job to force the people to grasp the real meaning of weights and measures work. At that, I presume we are all prone to let public officials do their duty without aid from us. Seldom do we worry about the subject of fire protection, police service, and the like. It is quite easy to dismiss such subjects with the satisfying thought, "Let the proper officials take care of such matters; that is what they are paid for." Maybe, to a greater degree, that is the general idea as to weights and measures law enforcement. Besides, the weights and measures subject is a technical one and beyond the ability of the ordinary citizen to grasp. However, it is even closer to the individual as a matter of everyday existence than many other forms of public service, hence the necessity of continuous effort to tell the educational story no matter how fruitless it may seem at times, and that is just what your radio specialty is doing.

It is impracticable, in fact a physical impossibility, for the weights and measures inspectors to be on hand every time a purchase is made in the United States, therefore, only by educating the public in proper buying and selling methods are we going to be able to fulfil our job of protecting the purchaser and promoting fair competition.

This education of the public by word of mouth has been possible since the beginning of weights and measures supervision, and by the press for many, many years, but weights and measures education by use of motion pictures and the radio has been possible for only a few years, therefore regular weights and measures programs over the air are not in general use. It is true that on special occasions there have been numerous weights and measures programs over the air, but in very few instances has a regular program been conducted. Persons who have studied the results of a regular weekly or every other week weights and measures radio broadcast have reported satisfactory results.

Robert Fullen, Chief Weights and Measures Inspector of Dallas, Tex., started a regular weekly 5-minute program over station WRR in Dallas. This broadcast has been developed by the State Department into a State-wide hookup. In New York City, Alex Pisciotta, Director of the Bureau of Weights and Measures, has a regular weekly broadcast over station WNYC. Barnett Kanzer, Director, Bureau of Weights and Measures for the State of New York, has been conducting a series of weights and measures radio broadcasts. There may be other regular programs with which I am not familiar. I do know many States, cities, and counties have special feature radio programs which are very beneficial.

It is a proven fact, since the radio has come into common usage both in the home and in the business world, that people will listen to a radio program, whereas they would never read a printed copy of that same program. The reason given is, people listen to the radio at the same time they are doing something else and therefore hear and learn things that they would not take time to read, which would require their entire attention. With this fact in mind you can realize the possibility of reaching people you wouldn't reach by other means.

I have been asked how the Department can afford to pay for 15 minutes of broadcasting every 2 weeks. The answer is simple. Station WBOW, Terre Haute, Ind., is willing, when possible, to donate time for programs of civic interest. Weights and measures programs are decidedly civic in interest, therefore when I explained what I had in mind, station WBOW was more than willing to donate 15 minutes

every other Thursday at 4:00 p. m. for weights and measures programs. We have been having these radio programs as a result of the generosity and broadmindedness of our local station WBOW.

A survey made by station WBOW shows that within a radius of 45 miles around Terre Haute there are 96,410 homes where radio receiving sets are located, and as a result there are 520,413 possible radio listeners, giving my Department in a city of 69,000 a chance to contact thousands of people whom it would otherwise be impossible to reach.

There are many sources for material and ideas for these programs. At my written request, R. W. Smith, of the National Bureau of Standards, sent me the following suggestions in reference to weights and measures radio programs:

To make your programs of maximum interest, I think you should strive for variety in subject matter, treatment, and speakers. As to subject matter, if one were to conduct a series of lectures to a class on weights and measures supervision, these might well be planned on the basis of an orderly and logical progression from historical background through the needs for supervision, the provisions of the existing statutes, desirable modifications of the statutes, the existing and most desirable departmental organization, the mechanical phases of supervision, the purely supervisional side of the work, reports on accomplishments and on faulty conditions encountered, the cooperation needed and desired from the general public and from organized groups, etc. For a series of radio programs, however, this gradual development of the subject might fail to hold the interest of the listeners; I believe, therefore, that it would be well to sacrifice something of logical progression for variety. The material may all be utilized eventually, but if each program differs rather sharply in subject matter from the preceding one, you should be able to hold an audience which might otherwise be lost.

I think it might also be a good plan to try to build each program around some central theme or about some unusual incident or fact; the more dramatic this key idea or incident is, the better, especially if it can be expressed in such a way as to arouse speculation and interest. As an example of the sort of thing I mean, I may mention that Dr. Heyl's work here at the Bureau in determining a better value for the gravitational constant was dramatized in the press as "weighing the earth."

Similarly, I would suggest variety in the method of presenting your programs. Let them not all be in dialogue form. At times talk for the entire period yourself. At times follow the "interview" technique, being interviewed yourself—which gives you the opportunity to answer the questions—or in turn interviewing someone else. At other times, subordinate your own part of the program by introducing some other speaker to do most of the talking, along some line definitely associated with weights and measures administration. An unrehearsed forum discussion to bring out the ideas of a varied group on some anticipated step or on some special problem should be an interesting innovation.

As to the speakers cooperating with you in your broadcasts, I would again suggest variety. You should, of course, be heard on each program, as the official at the head of your local organization, so as to keep your office before the public. But I can well imagine that you will have no difficulty at all in persuading some of those well known in your community to assist you; other city officials, prominent merchants, leaders of civic or business groups should all be glad to help. Unknowns may be interspersed among the celebrities—housewives, clerks, filling-station attendants, peddlers, John Q. Public himself, should all have some contribution to make, even though it be no more than a confession of ignorance of those weights and measures matters upon which they should be informed.

I have been very fortunate in having the assistance and cooperation of Waldo Watts, the Vigo County Weights and Measures Inspector. He has taken part in all discussion and is constantly encouraging me in the preparation of script for the programs. Judging from the public reaction, we have found the interview and discussion-type programs more interesting, and they tend to hold the listeners better than speeches or talks.

We have discussed in our National Conferences of past years, and will discuss at this Conference, material and subject matter which has in it dynamite for weights and measures radio programs. The dramatic clubs of our high schools have afforded us rare opportunities to present weights and measures dramatizations of some outstanding fact or an interesting case or some weights and measures procedure or the proper method of everyday buying and selling. These dramatizations not only give practical illustrations to the general public, but make an indelible mark on the minds of these young people, teaching them the proper methods of buying and selling. The students of Wiley High School in Terre Haute reenacted a scene dramatizing the proper methods of buying and selling poultry. Mr. Fullen, of Dallas, Tex., reenacted a raid he and his deputies made on a poultry establishment. Members of the radio-station staff and Mr. Fullen and his deputies took the various parts.

The history of weights and measures is as old as mankind, and therefore there are many interesting historical facts that can hold the attention of your listeners. The experiences that I have had from day to day have always been a source of material upon which to base my broadcasts. The bulletins sent to us by our State Chief, Rollin E. Meek, afford good broadcasting material. I reserve a part of each broadcast for a question and answer feature. At that time I answer questions sent in by mail or questions of general interest asked me during my daily work.

It is almost a daily occurrence for either Mr. Watts or me to have a comment made to us about our programs. While testing in a grocery store, one of the customers, upon hearing me referred to as the weights and measures inspector, told me that she had formerly not paid particular attention to the weights on the labels of the package goods which she bought. After hearing a program, she felt she had been receiving much more for her money by noting the weight of the package goods she had been buying, as suggested in the broadcast. One storekeeper said he had been interrupted during a broadcast to the extent that he did not get to hear all that I had said regarding oysters, and asked me to explain to him what he had missed.

If we could create enough public interest in the weights and measures departments and thereby get public opinion in our favor, I dare say we would have a far easier time getting adequate appropriations to operate our weights and measures departments.

We, in our local, State, and national departments of weights and measures, have made great strides toward educating the public, but that is only a good start. What we need is a united National front composed of the city, county, and State and National departments of weights and measures marching shoulder to shoulder pulling the same vehicle of educational principles in the same direction and at the same time. It would be a forward step if this Conference would appoint a committee to formulate a few simple but fundamental weights and measures educational precepts as lampposts to guide all the local units. This National weights and measures educational committee, with the aid and guidance of the National Bureau of Standards, could get the cooperation of all local departments of weights and measures to carry on the same educational program, thus securing Nation-wide attention. In my opinion this educational feature is as important as the inspection of equipment, but has

not been emphasized as much because most local departments of weights and measures are undermanned, resulting in the average inspector's daily routine demanding all his time. This committee could distribute information and programs that had been successfully conducted by local departments, thereby helping the local departments that do not have time to prepare programs.

Weights and measures educational programs should have as their goal, two aims—first, to promote fair competition among merchants, which would in turn protect the honest merchant by causing the weeding out of the dishonest merchant; second, to teach the consumer that the majority of merchants are honest, but that the consumer should learn proper methods of buying and selling in order to safeguard himself against the dishonest merchant, and also against unintentional mistakes. This type of weights and measures educational program will create a better understanding between the merchant, the consumer, and the department of weights and measures.

I do not minimize the value of weights and measures education by the press or any other methods of weights and measures education, but I do say, let's not only take advantage of the other methods, but let's also use the everspreading medium of radio for weights and measures educational purposes. We are faced with the dire necessity of weights and measures education. An ever-increasing number of homes and businesses have a radio in them; it is possible to reach people who cannot be reached otherwise; there has been a popular response to those broadcasts already had; and these broadcasts may be donated. In view of these circumstances there can be no question of the unlimited value of weights and measures radio programs.

The CHAIRMAN. You have heard Mr. Snyder's presentation and interesting suggestions. Is there any discussion on the matter at this time? This will be brought to the attention of the Committee on Resolutions for consideration. This concludes the morning program.

(At this point, at 1:13 p. m., the Conference took a recess until 2:15 p. m.)

SECOND SESSION—AFTERNOON OF TUESDAY, JUNE 6, 1939

(The Conference reassembled at 2:15 p. m., at the National Bureau of Standards; Lyman J. Briggs, President of the Conference, in the chair.)

DEMONSTRATION OF RECENT DEVELOPMENTS IN WEIGHING AND MEASURING APPARATUS, BY REPRESENTATIVES OF MANUFACTURERS

Secretary's Note.—At this point several manufacturers brought before the Conference samples of apparatus embodying new design features and demonstrated them to those in attendance. Particular attention was given to the new features incorporated, the method of manipulation of the adjustments provided, and the answering of questions asked by members. As was the experience in former cases, it was found that many of the remarks made are of no value to a reader when a sample of the product is not before him, and thus no good purpose would be subserved in printing such material here. Consequently, it has been omitted from the report.

It may be noted that such demonstrations as these, which familiarize the delegates with new apparatus, are of great interest and value to them. Attendance at the Conference is the only way in which advantage can be obtained from program features such as this. The delegates were duly appreciative of the efforts of the manufacturers who took part in this demonstration.

REPORT OF COMMITTEE ON PROPOSED FEDERAL LEGISLATION TO PROVIDE ASSISTANCE FOR THE STATES IN ADMINISTRATION OF WEIGHTS AND MEASURES LAWS, PRESENTED BY JOHN P. MC BRIDE, CHAIRMAN

Mr. Chairman and gentlemen of the Conference: The proposed bill for Federal aid was first presented to the Twenty-seventh National Conference in 1937 by Mr. Meek, of Virginia, and after considerable debate on the question from the angle of Federal control and possible loss of State rights, the Conference voted to take no action. The matter was further pressed by Mr. Meek and a special committee was appointed to consider the matter for the 1938 Conference. This committee held several meetings. One of such meetings was an open one to which was invited all members of the Conference desiring to attend, for the purpose of getting an expression of opinion; but one person attended this open meeting and the committee felt that they were not in a position to make a definite report to the 1938 Conference and prayed for further time. This was granted and a questionnaire was made up from suggestions, advanced by the committee members. The questionnaire was sent, with a copy of the proposed bill, to 55 different jurisdictions. Forty replies were received. Fifteen jurisdictions failed to interest themselves sufficiently to answer. Of the 40 received, 28 were from State authorities, 11 were from municipalities, and 1 was from a county.

The interrogatories and replies thereto are as follows:

1. Are you in favor of the National Conference sponsoring the adoption of this proposed bill?

Replies to the above showed 18 jurisdictions opposed to the Conference sponsoring this bill, 10 in favor, and 7 in favor under certain specified conditions. The remaining 5 did not indicate their attitude.

2. If your answer is Yes, to what extent would you favor Federal aid?

In the replies, eight stated they were in favor of Federal aid administered by the Bureau as at present, expressing an attitude favorable to supporting additional funds to promote activities along this line. Two were in favor of unlimited Federal aid. One expressed itself as in favor of close supervision. Two wanted Federal financial aid only. Two were for the method as outlined in the proposed bill, and one was for financial assistance bearing one-half the expense of any special activity. The remainder did not answer this question directly and might be classified as being satisfied with the present arrangement. There was a very strong current against Federal aid approaching centralization and control, to the derogation of State rights.

3. If your State does not have a bureau or department of weights and measures at the present time, do you think the governing officials would accept the proposed Federal aid intended in this proposed bill?

This question proved to be somewhat of a "dud." Only five of the jurisdictions have no department and some of these function through other departments. One of these five stated that such a proposition would not be acceptable; the remaining four did not state. Others expressed as conjectural the acceptance by their various authorities. One thought it might require legislative action.

4. Do you favor the joint supervision by Federal officials with your own in matters pertaining to weights and measures in your jurisdiction?

Nineteen jurisdictions replied very strongly in the negative, setting up as a reason that divided authority would tend to confusion. Eight were in favor, and one was doubtful. The remaining did not reply.

5. State specifically your reaction to sections 3, 4, and 5 of the proposed bill, and if you think such a proposed plan could be worked out equitably and be feasible under all circumstances.

This produced a variety of answers with a trend against what some felt would amount to a compulsory adoption of specifications and tolerances. A distaste was expressed for the method of voting outlined. One jurisdiction thought the matter of matching funds not equitable, as he felt his State could not meet any great sum. Objection was taken to particular sections. Others thought that it might be more equitably worked out. The consensus would indicate a necessity for some revision in these sections.

6. What is the present weights and measures setup in your jurisdiction, and what is the total amount of your annual budget, including salaries and expenses?

Twenty-three States have departments, three apparently have nothing, and two have a form of weights and measures supervision. One State has a setup with no funds at all. Several stated they needed no financial assistance whatever, and some stated that all they wanted was financial assistance. The budgets varied from $5,000 per annum to $150,000, the latter being for the city of New York. Most of the States averaged around $40,000.

It may be said that this questionnaire showed a disposition against the proposed bill, but a desire for a continuance of the present system of cooperation between the Federal Bureau and the States, counties,

and municipalities, with the hope that the Bureau might receive further funds to be expended for the purpose of continued and increased activities along advisory lines. The general feeling seemed to be that this bill would be a means of final Federal total control.

Your Committee therefore feels that this proposed bill would not be successful of enactment and respectfully recommends that this Conference take some appropriate action before the Congress to increase the appropriation of the National Bureau of Standards, for the specific purpose of enabling the Bureau to assist the States, cities, and counties by sending a representative to the State meetings, sending testing equipment when occasion required, and otherwise advising and assisting the several jurisdictions in the proper performance of their duties.

(Signed) John P. McBride, *Chairman*,
W. P. Reed,
J. H. Meek (by M. A. Hubbard),
Chas. C. Read,
Rollin E. Meek,
Committee on Proposed Federal Legislation.

DISCUSSION OF ABOVE REPORT

Mr. McBride. Now, what form the action to secure increased appropriations might take, we don't say. I don't know whether I am correctly informed, Doctor Briggs, but Mr. Meek, of Virginia, sent me a letter this morning and he said that the bill containing proposed Bureau appropriations now rests before the subcommittee of the Senate Committee on Appropriations. He thought some action might be taken now toward informing that committee what this Conference might think of increasing the National Bureau of Standards' appropriation for the specific purpose of affording additional travel funds, for attendance of the Bureau representatives at meetings, and for operation of equipment such as the Vehicle-Scale Testing Unit and the equipments for the testing of railway track scales. Something might be accomplished presently; otherwise it might have to wait until next year.

Mr. Jansey. Mr. Chairman, the Committee is recommending that there be an additional appropriation for the Bureau, but what does your Committee recommend on the rest of it, on all the other queries, such as centralization of control and the appropriations for the use of the States?

Mr. McBride. The Committee feels this bill would not be successful of enactment, and recommends that the Conference take some appropriate action to give the Bureau some additional funds.

Mr. O'Keefe. I move you, then, that Mr. Meek's bill be not adopted by this Conference, except for the part for further appropriations for the Bureau.

(The motion was seconded.)

Mr. Ackerman. It strikes me as strange that there were 18 States opposed to Federal aid. That is something new to me. I am wondering when this questionnaire went out and who took the responsibility for answering for the various States.

Mr. McBride. The query was:

"Are you in favor of the National Conference sponsoring the adoption of this proposed bill?"

Now, that was not concerned with general Federal aid; it relates only to this specific bill. The questionnaires mainly went to officials on record here as heads of the different State departments; some went to governors.

Mr. ACKERMAN. I don't believe a comprehensive survey of all the States would show there are 18 States opposed to Federal aid.

Mr. MCBRIDE. The query was only in relation to this bill. Some interrogatories show that those answering were in favor of a different form of Federal aid, but not to the form proposed in this bill.

Mr. LEVITT. I think most of the fellows expressed their feelings as heads of departments, personally, and for the benefit of their own departments. After all, your Congressmen or Senators usually speak for you in the Congress as to the measures the Federal Government is going to handle for the benefit of the States.

Mr. O'KEEFE. I understand there are two separate bills under consideration and, if so, we should go on record as opposing Mr. Meek's bill first. I am opposed to the original bill Mr. Meek presented 2 years ago. I am down here to promote weights and measures work and not to propose financing. My city of Chicago will take care of finances.

The CHAIRMAN. The Chair understands, then, sir, that your motion is that the original bill proposed by Mr. Meek be not endorsed by this Conference?

(The question was taken, and the motion was agreed to.)

Mr. MCBRIDE. The further recommendation of the Committee was that some appropriate action be taken before the Congress to increase the appropriation of the Bureau for the specific purposes of enabling the Bureau to send representatives to State meetings, to operate equipments, etc. There is a bill now pending before Congress seeking to increase the Bureau's appropriation.

Mr. O'KEEFE. Mr. Chairman, I move you that that be adopted. I am with the Bureau in anything they want, because I think they are doing splendid work.

Mr. MCBRIDE. Shouldn't a committee be designated to decide how that should be furthered? Otherwise nobody is going to be charged with the responsibility.

Mr. O'KEEFE. I will add to my motion that the Chairman appoint a committee to see that the legislation is followed through.

Mr. HOLBROOK. Mr. Chairman, is there any bill now before Congress to this end?

The CHAIRMAN. Mr. Meek, who is interested in the work of this Conference and the work of the Bureau, endeavored to have a supplemental appropriation item added to the appropriation for the National Bureau of Standards for the purposes you gentlemen have indicated. But Congress is very reluctant to consider such matters unless it comes up through the Bureau of the Budget in the regular way. This matter was not taken up early enough to bring it before the Budget in connection with our regular Bureau appropriations. While Mr. Meek presented the matter both to the Committee on Appropriations of the House and also to the Committee on Appropriations of the Senate, the House did not act on it, and I have reason to think that the Senate Appropriations Committee will not act on it either, because when I came before the committee no inquiry about it was

made. So the situation at the present time is that there is no bill formally before the Congress.

Now, the most direct and helpful procedure would be for this Conference to appoint a committee, if you so desire, to confer with the Bureau of the Budget and with the appropriation committees, relative to an increase in the funds of the Bureau for the purposes you have in mind. Nothing can be done this year. But it would be quite in order for you to take the action indicated, which your Committee has already recommended, to support the work in the way I have indicated. If that is your wish, the Chair will entertain a motion.

Mr. WALDMAN. Mr. Chairman, would it not also be advisable for this Conference to go on record by resolution? Would not that be an effective way of presenting the matter to the Senate Appropriations Committee?

The CHAIRMAN. I think the effective way, sir, is to call on those people. It would be in order for the Committee to present a resolution.

Mr. WALDMAN. Then, if I am in order, Mr. Chairman, I move that the Committee be empowered to draw that resolution for adoption by this Conference.

Mr. BAUCOM. We have not appointed the committee.

Mr. WALDMAN. I propose that the present Committee continue to function.

Mr. BAUCOM. The Committee should confer with the National Bureau of Standards, and cooperate with the Bureau and work under its direction in bringing about the very thing we want to help to do. The Conference as such doesn't know how to proceed.

I had the pleasure of discussing this with Dr. Briggs about a month or so ago, and the situation here in Washington is, that he can't express any view of how much money he wants until the Bureau of the Budget has acted on the request. Now, then, we will have to wait for his instructions in order to see the different committees in Congress. What we are trying to do is fall in line and help Dr. Briggs in every way possible.

Mr. HOLBROOK. The continuation of the present Committee has been suggested.

Mr. O'KEEFE. That is right.

The CHAIRMAN. We have two motions, and neither of them has been seconded.

Mr. ACKERMAN. I second Mr. O'Keefe's motion.

Mr. WALDMAN. I withdraw mine from the record.

The CHAIRMAN. Gentlemen, Mr. O'Keefe's motion is before you, duly seconded. Is there further discussion?

(The question was taken and the motion was agreed to.)

Mr. RAGLAND. This morning a paper was read on tolerance, and it wasn't left with the clerk but was taken to be rewritten. I am sure that the Conference doesn't want any such action as that. We want that paper as read this morning. I make a motion we request that that paper be submitted as read this morning.

(The motion was seconded.)

The CHAIRMAN. Is that Mr. Harrison's paper?

Mr. R. W. SMITH. Mr. Chairman, I think Mr. Harrison's request was based on a desire to submit a clean copy without some interlinea-

tions he had on the paper. The motion indicates there might be some subversive action, and I am sure that is not the case.

The CHAIRMAN. In view of that explanation, do you now press your motion?

Mr. RAGLAND. No, sir.

ACTIVITIES OF THE NATIONAL SCALE MEN'S ASSOCIATION

By H. M. BATCHELLER, *President, National Scale Men's Association*

Mr. Chairman, ladies, and gentlemen: Allow me to extend to this distinguished body greetings and best wishes of the National Scale Men's Association. As President and official representative of this organization, permit me to express their earnest desire to cooperate in every way to forward the work of this great National Conference on Weights and Measures.

I have been asked to speak on rather a broad subject; therefore, I'll endeavor to confine my remarks to some of the important features.

The National Scale Men's Association now has a membership of about 400. Among the more important committees is the one now investigating the feasibility of the "Over and under attachment" applied to scale beams, which it is claimed will be faster and more accurate for testing and weighing purposes. Another item is that a committee has been retained from 1938 to try to have the National Conference on Weights and Measures and the AREA retract their liberalization of tolerance on corner tests of vehicle scales. The National Scale Men's Association and all the local divisions have voted against changes in the vehicle-scale tolerance, as has also the Western Railroad Scale and Weighing Conference, which represents about all railroads west of the Mississippi River.

One of the chief activities which I feel has done more to bring about a better understanding and friendly relationship between industry and scale men is the formation of so-called local divisions or branches of the National Scale Men's Association in various communities. These locals hold meetings, inviting scale men; weight and measure department officers; and employees of States, counties, and cities; scale manufacturers; weighmasters; and owners and users of scales.

The purpose of these gatherings is to discuss problems pertinent to the maintenance and efficiency of scales, and primarily to educate the owners and users of scales, that it is false economy to just go to the expense of purchasing and installing a scale, and then forget it. For although it may originally have been well-precisioned, the constant use and battering of this device is such that it demands attention the same as any other fine piece of mechanism. Therefore, to derive the maximum benefits from the investment it is important that scales be tested at frequent intervals, and any defects corrected by competent scale men before there is too much loss to the industry. The enthusiasm displayed has been the means of rapidly increasing our membership.

I had the pleasure of attending the last meeting of the Northwest Division in the Twin Cities and wish to state that the Minnesota State Weights and Measures officials requested all of their inspectors to attend, and they were all present at this meeting which lasted 2 days. We also had the Superintendent of Weights and Measures from North Dakota and all of his inspectors. There were 110 in attendance at this meeting.

At present, charters have been issued to six locals which were organized and are now active, namely, Central Division, Chicago; Midwest Division, Kansas City; Texas Division, Houston; Northwest Division, Twin Cities (Minneapolis and St. Paul); Pittsburgh Division, Pittsburgh; and Southern Division, Birmingham.

On June 23 a charter will be presented to the Great Lakes Division at Toledo. We started organizing these locals about 2 years ago, and it is our aim to continue this work until we have branches in all parts of the United States.

Altogether, I wish to assure you that the activities of the National Scale Men's Association have shown a healthy growth during the last year. The spirit of the organization is good and promises much for the future.

DISCUSSION OF ABOVE PAPER

The Chairman. It is always pleasant to hear from this organization. Have you any questions to ask Mr. Batcheller?

Mr. Baucom. I would like to ask one or two. I understand your organization is on record as recommending that corner tests be resumed again.

Mr. Batcheller. Yes, and the Western Conference has gone on record for the same thing. We have the chairman of our committee present here now, Harry Roeser, and I am sure if there are any questions you want to ask, he will be very glad to answer them for you.

The Chairman. We would be glad to hear from Mr. Roeser.

Mr. Roeser. I don't believe there is anything to be added to what Mr. Batcheller said, that the Association doesn't like this special tolerance on corner tests of 0.4 percent. It tears down a lot of work and it is of no use to us. We opposed it unanimously at our last convention.

The Chairman. Is it not required that the scale be accepted, Mr. Roeser, only when the average value of the errors on the two corners at one end of the scale is within two-tenths of 1 percent?

Mr. Roeser. In substance the resolution adopted at the last National Scale Men's Association was this: That all of the material in the Handbook H22 relative to vehicle scales be deleted and tolerances adopted which read in substance that the tolerances on vehicle scales shall be 2 pounds per thousand on scales in service at any load and under any condition of application of load to the scale.

The Chairman. Is there further discussion?

BROKEN GLASS

By George F. Austin, Jr., *Supervising Inspector of Weights and Measures, City of Detroit, Mich.*

Mr. Chairman, members of the Conference, and guests: At the present time we, as weights and measures officials, are very much concerned over standardization of packages, and rightfully so. By the same token we should be equally interested in an adherence to our principles of standardization and uniformity as we have them presented to us at these Conferences from time to time, and we should attempt to keep our own house clean in view of the fact that we want to entertain standardization along other lines. It was with this thought in mind that I have prepared this paper.

Many years ago, during the earlier periods of civilization, the pioneers built their homes out of logs, so they would have a staunch

and lasting shelter against the elements of the weather, attacks by beasts of the forest and the Indians. However, types and styles of architecture have changed considerably since that time, until today we have homes built out of glass blocks, for comparison. Therefore, it is entirely within the realm of possibility now, to live in a glass house and to be able to look out upon the world and observe your contemporaries as they pass in parade through life, without fear of having your glass house shattered by a missile tossed from the hand of someone to whom you may have had occasion to offer constructive criticism. So being a bit fearful of the old saying, "People who live in glass houses," etc., and not caring to find myself buried under a pile of broken glass, I have patiently awaited this day and age, to impart a few inoffensive suggestions, in the interest of better weights and measures supervision.

The weight and measure official today is clothed with exceptional authority and has great powers in his hands. When properly used, this power finds its secure resting place in justice, where such powers are delegated through law. In the use of such power the weight and measure official determines by his course of action whether he is using them to promote justice, or whether he abuses his powers to the commission of unjust acts.

While admiring the service rendered by the manufacturers of weighing and measuring devices, the weight and measure official should not establish any relation with such manufacturers whereby through his aid and help, sales are made of a particular manufacturer's device. Such interest is apt to prejudice a weight and measure official in favor of, or against, a certain make of apparatus, while activity in promoting the sale of a device in which he is financially interested, frequently impairs his effectiveness and lowers his standing among his associates and with merchants and manufacturers. The successful weight and measure official must be impartial; he must refrain from expressing his views publicly when asked for them by merchants who are in the market to purchase certain types of apparatus. Any apparatus manufactured by a reputable firm which has been approved by competent weight and measure officials as conforming to the standards, should be satisfactory to him.

Weight and measure officials should always be prepared to deal with insidious propaganda concerning their policies; many times this propaganda is motivated selfishly and for personal reasons. You may have a challenge to meet at this very Conference, of like nature, where a tolerance adopted by this official assembly after a thorough study and lengthy consideration, is now being assailed. In this instance, the real issues and the real motives of the agitators have been carefully veiled; the reason for changes cannot be satisfactorily explained by those loudest in their clamor. Therefore, in the discussion of such matters, it is well to weigh all evidence carefully.

A weight and measure official today occupies in many ways both the position of a prosecutor and a judge. He should possess a character that is definitely above suspicion and reproach. He should be honest, considerate, energetic, tactful, and just. He should weigh his action before proceeding against an individual or firm, consider what it means to the individual or firm that is to be publicly exposed, and what the influence of his act will be upon the community. An unwise weight and measure official can do much harm in ruining the

reputation of a reputable merchant or manufacturer, and he can deal a blow to the prosperity of a city or town in which he operates by leading its inhabitants to believe its businessmen are cheats, and that it is no place in which to do business.

With the wonderful increase in population and commerce made by America within the life of the present and the preceding generation, the position of the weight and measure official has developed into a very important one. From practically an obscure and unimportant office in the community, the office of weights and measures has advanced to a point where the incumbent must possess not only a knowledge of his own duties, but he must possess the necessary tact and understanding to deal fairly and justly with those merchants and manufacturers with whom he has official relations.

The weight and measure official of today is imbued with the same spirit which actuates the vast majority of the public officials of America, namely, the desire to perform real service for the public. He knows, or should know, that because he possesses large powers he should not use them to harass and hinder the operations of the reputable merchants and manufacturers; one of his principal functions is to cooperate with them. However, he should correct those practices which are not in compliance with the law, because these are a menace to the business, commercial, and industrial life of this country, and if permitted to continue, not only make it impossible for honest competitors to do business, but result in the mulcting of the purchasing public.

A factor which has notably contributed its share toward elevating the standards of American commerce during the last quarter of a century is the splendid cooperation and service rendered by the manufacturers of weighing and measuring apparatus. To the men responsible for the investment of capital, to the inventive geniuses who have created such wonderful devices for weighing and measuring commodities, to the intelligent and energetic men who have traveled to all parts of America to explain the advantages to be gained by the merchant, the manufacturer, and the consumer through the use of such devices, a debt of gratitude is owed by the American public for their invaluable services.

The fact that specifications and tolerances for commercial weighing and measuring devices, contained in the National Bureau of Standards Handbook H22, are the fruit of a great deal of study by men whose experience in the weights and measures field makes them unquestionably qualified to know "What's what", should be sufficient reason for a general and more thorough adherence to same.

In some instances where a lack of cooperative spirit is evident, it has been attributed to the weight and measure official not having education commensurate to the office he holds, while some others are too busy with peanut politics, are void of suitable qualifications, and are trying to get ahead of the other fellow. In this respect, there is one thing of which I am firmly convinced; that it is possible to be so concerned with what you are going to be in the future, that you can fail to be what you ought to be now. And since the future is invariably built, piece by piece, out of many "nows", what you are now is most important. Unfortunately, and as selfish as it may seem, you will find that the world in general is not particularly interested in where you and I want to get, even though it may seem

to be. Rather, the world is interested in having its work done, in having the things done which should be done and well done. The work comes first; the worker is only a necessary implement or device. Therefore, your value to yourself can only be determined by your value to other people, your employees, your associates, your community, city, or country. The sooner you and I learn the stark reality of this truth, the sooner we will be on our way toward getting ahead.

The weight and measure officials and the reputable merchants and manufacturers are all engaged in the work of serving the public. It is only through the performance of their respective parts that the public is justly and equitably served. In establishing proper relations with the merchants and the manufacturers, the weight and measure official can do much to raise the standards of commerce, to further the prosperity of the nation, and to render genuine and efficient service to the public.

Here in Washington, D. C., we have, as you well know, an institution of which we can be justly proud—the National Bureau of Standards. This institution was established some 39 years ago at a considerable cost, and is being maintained at no little cost to the taxpayer. This institution was dedicated to a specific and all-important purpose, that of standardization and unification of matters pertaining to commerce. We find within this great organization a division whose efforts are wholly directed to bringing about standardization and uniformity in matters relating to weights and measures. In addition, we have the National Conference on Weights and Measures which convenes annually at the National Bureau of Standards, and which is working in the same direction, to provide standards to guide weight and measure officials in their work.

It is gratifying to know that the majority of States, counties, and cities having departments of weights and measures, carry out the edicts of these parent organizations; however, there are some departments that fail to cooperate to a measurable degree, thereby retarding their own efficiency and becoming a stumbling block in the way of a commendable National program for uniformity in the administration of weights and measures.

In my short span of busy years I have seen this drama enacted over and over again; I have seen men who, by virtue of their talents, should have been shouldering the more important responsibilities of an organization, become more and more discouraged and disgruntled; then, pitying themselves, they have given up the ghost and move on from place to place in a futile effort to find the job that had a future in it for them.

Nothing that ever amounted to a whoop was accomplished, except through righteous effort and teeth-gritting determination to overcome obstacles, and it is well to remember that the best jobs are not secured through seeking, for good jobs seek men—men who have left a trail of satisfactorily completed jobs behind them.

If you follow this rule or philosophy, I know from my own experience and the experience of others, that the resulting work will be good work, that credit for this good work will accrue to your interest, that your reputation for doing good work will come to the attention of those who are able to show their appreciation, and the chances are 10 to 1 that you will wake up some day with the pleasant surprise

of finding yourself much farther along the road to success than you had any idea of being.

So I close with a friendly suggestion. In this race of life, don't spend much time watching the other fellow and trying to get ahead of him. Watch yourself and confine your efforts to your responsibilities as a weight and measure official; tackle your daily problems with a zest and a real sincerity of purpose. And as the captain of a ship depends on a rudder to guide his boat, so should you depend on tried and proven practices to guide you to a successful end.

TEST WEIGHTS OF LARGE DENOMINATIONS

By Ralph W. Smith, *National Bureau of Standards*

This paper does not treat of those test weights of small denomination used as "error weights" or of the standards for use at the tip of a weighbeam in determining ratio errors or on a balance in testing counterpoise weights; the paper is limited to a consideration of those test weights comprising the "test loads" utilized in the testing of large-capacity scales.

Test weights may be classified into three principal groups, upon the basis of the customary methods employed to handle them in the course of a test. In group 1 we may place weights which are susceptible of being handled entirely by manual effort. The familiar 50-pound cast-iron weight is the most common weight in this group, but the 100-pound weight, if and when used, also belongs here.

In group 2 we may place those weights of larger denomination, which require some mechanical assistance for their handling but in connection with the handling of which manual effort does or can play a large part. In this group belong weights of denominations in excess of 100 pounds but not exceeding 1,000 pounds. The common examples of weights in this group are those of 500- and 1,000-pound denominations. Such weights can conveniently be shifted on a reasonably smooth and level surface by means of a simple cart or dolly, but require a hoisting mechanism for loading into or unloading from the transporting vehicle.

In group 3 are to be classified all weights of denominations in excess of 1,000 pounds. Weights of this group are usually of denominations of 2,500, 5,000, or 10,000 pounds. The loading and unloading of these weights demand not only a hoisting mechanism but also power operation of such mechanism, and in practically all cases power-operated means are required for shifting the positions of the unloaded weights.

There are certain general principles which should be observed in the design and manufacture of weights of all groups, and these may be enumerated as follows:

1. *Material.*—Weights should be made of material which is sufficiently hard and tough to resist damage as a result of normal handling. Cast iron is most commonly used for all weights except those of very large denomination, and gives good satisfaction when of good quality; it may readily be cast in the desired form, is sufficiently hard, and is not unduly expensive, but has the disadvantage of being somewhat susceptible to fracture. Steel is readily cast, is sufficiently hard, and is less brittle than cast iron but has the disadvantage of being considerably more expensive than cast iron. Hollow castings filled with

water or loose material have been proposed, but these have almost never been used and cannot be considered suitable as standards.

2. *Design.*—In general a test weight should be designed to provide the minimum of exposed surface consistent with the intended method of its use, handling, and storage. For denominations of 1,000 pounds and less, weights which approximate the form of a cube will be found very satisfactory. Recesses in the top and sides in which water or foreign matter can accumulate should, if practicable, be avoided, and the surfaces beneath the handle or lifting bar should be sloped to reduce accumulations at this point and to facilitate their removal if they do occur. The central portion of the bottom of the weight should be slightly raised in order to reduce the area of the weight in contact with its supporting surface, but the side walls of the resulting depression should be formed at a considerable angle to reduce the probability of picking up foreign matter and to facilitate cleaning. The interior angles formed by the sides and bottom of any depression in a surface should be well-rounded to facilitate cleaning. All edges and corners should be well-rounded to reduce the probability of fracture. There should be no projections beyond any of the principal outside surfaces.

The weight should be provided with an adjusting cavity of a capacity adequate to meet requirements for original and future adjustment, but this cavity should not be of excessive size; before its first adjustment the value of a weight should not be more than 1.5 percent less than its nominal value, and if after the initial adjustment there remains sufficient space in the cavity to accommodate an amount of adjusting lead equivalent to approximately 0.5 percent of the nominal value of the weight, this should serve all purposes. For example, in the case of a 1,000-pound weight, the adjusting cavity should be designed to have a volume of approximately 50 cubic inches, and after the initial adjustment of the weight, there should remain not less than 10 cubic inches of space for future adjustments. The adjusting cavity should have but one opening and this should normally be in the side and not in the top of the weight; in no case should the opening be in the bottom of the weight. This opening should be closed by a screw plug and the plug should be covered by a lead sealing cap driven tightly into place. The walls of that portion of the adjusting "hole" surrounding the sealing cap should be undercut, or other suitable provision should be made, to insure permanent sealing of the cavity.

It is desirable that the weight be marked with a designation of its nominal value, preferably cast into the weight. The preferred form is characters in relief upon a recessed panel in the side of the weight. When a weight is cast to special order, a brief designation of ownership may be incorporated in the design for the value designation. Another form of designation of weight value and ownership is provided by stenciled characters or decalcomania transfers applied after final painting; these have the advantage of leaving the sides of the weight free from any depressions, but they are less permanent than the cast-in characters.

3. *Casting.*—The weight should be so cast that it is free from all blow holes, gas pockets, or other imperfections at or near any of its surfaces.

4. *Finish.*—All surfaces of the weight should be finished reasonably smooth, and should be given a suitable protective coating. The metal surfaces of new weights should be chemically treated with a zinc phosphate solution, such as Bonderite or Granodine, and one coat of an anticorrosive primer should be applied. Experience indicates that a very satisfactory paint finish is two coats of aluminum paint mixed in the proportions of 2 pounds of aluminum powder or paste to 1 gallon of first quality spar varnish. Overnight drying should be allowed between successive operations. After weights are put into use, the finish may be kept in good condition by application of the aluminum paint, as circumstances require, except that if and when the paint coat becomes perceptibly thick, all old paint should be stripped off before repainting.

An alternative finish for weights has been suggested by one manufacturer, as follows:

> Thoroughly clean and heat the weight to perhaps 200° F, then paint with two or three coats of good grade oil that will not gum when cold. After this has been allowed to penetrate, the weight is rubbed down and given two coats of wax. We have weights over 30 years old treated in this manner which do not rust and remain in almost perfect seal from year to year. The weight should be cleaned and given a fresh coat of wax before each readjustment.

In the case of the large weights of group 3 (denominations over 1,000 pounds) the particular means and methods adopted for handling the weights will frequently dictate details of design necessitating departure from some of the general principles outlined above. It may also be noted that in certain instances hand-operated and power-operated units utilized in handling test weights have themselves been standardized for use as test weights; such units require more careful and more frequent attention than test weights of ordinary design in order to maintain the same degree of accuracy for each.

The Bureau has recently reviewed the entire question of tolerances for test weights of the three groups under consideration in this paper. The tolerances formerly adopted for avoirdupois weights are given in table 1.

TABLE 1.—*Original class C tolerances for avoirdupois weights of large denominations*

Group	Denomination of weight	Tolerances
	Pounds	
1	50	±10 grains (with a maintenance tolerance of ±50 grains for cast-iron weights).
	100	±1/16 ounce.
2	200	±1/8 ounce.
	300	±5/16 ounce.
	400	±1/4 ounce.
	500	±3/8 ounce.
	1,000	±3/4 ounce.
3	2,000	±1½ ounces.
	5,000	±4 ounces.
	10,000	±8 ounces.

These tolerances were considered to be not entirely satisfactory in the following respects: (a) A maintenance tolerance was not specified for weights larger than 50 pounds. (b) The maintenance tolerance of 50 grains provided for the cast-iron 50-pound weight, which represents 1 part in 7,000, made it theoretically possible for the error of the

test weights to exceed 25 percent of the tolerance of 0.5 pound per 1,000 pounds, which represents 1 part in 2,000, applicable on certain scales; moreover, the ratio of 1 to 5 between the adjustment and maintenance tolerances specified seemed excessive in itself. (c) Because of the limitations of the equipment ordinarily procurable for the testing of weights of large denominations, it was considered improbable that accurate determinations within tolerance values as small as those specified for the larger denominations of weights could consistently be made. (d) The adjustment tolerance for the 50-pound denomination is a part of what may be called the regular class *C* series of the Bureau, in which the tolerances grow proportionally smaller as the weight denominations increase, whereas the tolerances for weights of 100 pounds and more are seen to be approximately, although not exactly, proportional; it appeared that the 100-pound weight should be associated with the 50-pound weight rather than with those of larger denomination, by reason of similarity of physical characteristics and methods of handling and use, and that its adjustment tolerance should therefore be derived by an extension of the regular class *C* series.

In arriving at a new set of tolerances, we started with the basic value of 10 grains as the adjustment tolerance for a 50-pound weight and reduced the maintenance tolerance for this denomination from 50 to 40 grains. The class *C* series was extended to arrive at a 15-grain adjustment tolerance for the 100-pound weight, and the maintenance tolerance for this denomination was derived by applying the 1 to 4 ratio observed for the 50-pound denomination. An adjustment tolerance of 1 ounce was then decided upon for the 1,000-pound weight, proportional tolerances were fixed for the remaining denominations, and the table was simplified by listing only those denominations commonly reproduced. For weights of denominations in excess of 100 pounds, it was found that a ratio of 1 to 2 between adjustment and maintenance tolerances would result in a maintenance tolerance of 1 part in 8,000, which, with a minimum scale tolerance of 0.05 percent, or 1 part in 2,000, is the maximum permissible under the principle of restricting the tolerance on a standard to a value not exceeding 25 percent of the value of the minimum tolerance on the instruments to be tested by the standard; accordingly, maintenance tolerances for these denominations were derived by applying the 1 to 2 ratio. Finally, there was added the instruction that for denominations not listed, the tolerances would be proportional to the tabulated values.

The new tolerances for avoirdupois weights of class *C*, in denominations of 50 pounds and upward, are given in table 2.

To recapitulate, it may be said that in the new tolerances now presented, we have values which are closely coordinated throughout. Maintenance tolerances are 1 part in 8,000 except for the two lowest denominations, where they are 1 part in 8,750 and 1 part in 11,667, for the 50- and 100-pound denominations, respectively; thus it is provided that the permissible error on a weight will never represent an undue proportion of the tolerance applicable to the devices for the testing of which the weights will be used—in other words, the weights, under these tolerances, will be sufficiently accurate to meet every anticipated need. Adjustment tolerances are not so small as to preclude their application when weights are being calibrated on equipment available or readily procurable, yet are in all cases sufficiently

less than the corresponding maintenance tolerances to provide a reasonable range throughout which the value of the weight may change before readjustment is demanded, thus avoiding unnecessarily frequent adjustment, and simplifying the maintenance of these test weights.

TABLE 2.—*New class C tolerances for avoirdupois weights of large denominations*

Group	Denomination of weight [1]	Tolerance	
		Acceptance and adjustment	Maintenance
	Pounds		
1	50	10 grains	40 grains (for cast-iron weights only).
	100	15 grains	60 grains.
2	500	0.5 ounce	1 ounce.
	1,000	1 ounce	2 ounces.
3	2,000	2 ounces	4 ounces.
	2,500	2.5 ounces	5 ounces.
	5,000	5 ounces	10 ounces.
	10,000	10 ounces	20 ounces.

[1] For weights of denominations intermediate between those listed, the tolerances shall be proportional to the values shown.

The tolerances for class *C* weights of large metric denominations have also been revised to harmonize these with the revised tolerances for weights in the avoirdupois system, and the new values are given in table 3.

TABLE 3.—*New class C tolerances for metric weights of large denominations*

Denomination of weight [1]	Tolerance	
	Acceptance and adjustment	Maintenance
Kilograms	*Grams*	*Grams*
20	0.6	[2] 2.4
25	.7	[2] 2.8
50	1	4
200	12	24
500	30	60
1,000	60	120
2,000	120	240
5,000	300	600

[1] For weights of denominations intermediate between those listed, the tolerances shall be proportional to the values shown.
[2] For cast-iron weights only.

In passing, it may be noted that the test weights utilized on the railway track scale testing equipments of the Bureau are adjusted without regard to tolerances, the effort being to approximate zero error; these very close adjustments are considered necessary because of the use of these weights for the calibration and adjustment of master railway track scales.

The calibration of such test weights as are under consideration in this paper does not require any special skill or knowledge beyond what is at the command of every well-informed weights and measures officer, but the proper calibration of any of these weights does demand equipment possessing special characteristics. Such equipment consists of one or more of the following items, depending upon the denomi-

nations of the weights to be calibrated: 1, a suitable balance; 2, a suitable testing beam; and 3, a suitable platform scale. Of the utmost importance, of course, is a suitable standard of mass as a basis for the calibration.

A 50-pound standard will ordinarily be the basis for the calibration of any weight of groups 1, 2, or 3. Such a standard should be accurate within ±2 grains, which is the class *B* tolerance of the Bureau, in which case its error may be neglected; or its error should be known so that suitable correction therefor may be made when the standard is used.

For the calibration of 50-pound weights the familiar equal-arm balance with suspended pans, having a capacity of 50 pounds on each pan, will be found convenient and satisfactory. If the equality of arms is good, the direct weighing method may be used, that is, the standard on one pan against the weight under test on the other pan; if the equality of arms is not good, it will be advisable that the substitution method of weighing be used, in which the rest point of the balance is first established with the standard on one pan and any convenient mass on the other pan, the standard is then removed and the weight under test substituted for it, and finally, small weights are added as required on either pan to restore the former rest point, the error on the weight under test being equal to the value of the small weights so added. The procedure for testing weights on a balance is explained in detail in a paper presented to this Conference in 1926 by A. T. Pienkowsky, chief of the Mass Section of the Bureau, and that paper should be studied by all who may need to refresh their minds on this subject.[1]

There is one type of portable equal-arm balance with a capacity of 10 pounds on each pan having an extra load-receiving element designed to receive a 50-pound weight, which has a ratio of 5 to 1 with respect to the opposite pan. Such a balance may be noticeably less sensitive under 50-pound load than the regular 50-pound equal-arm balance, but if it is of proper design and construction and in good condition it will give satisfactory results for calibrating 50-pound weights of class *C*.

Balances upon which 100-pound weights may be calibrated are manufactured, but are not generally available, and for weights of this denomination it will ordinarily be necessary to utilize a testing beam of some kind.

Both 50- and 100-pound weights may be calibrated upon the testing beams, presently to be discussed, designed primarily for the test- of 500- and 1,000-pound weights. With care, a testing beam for weights of group 1 may be fabricated from a vehicle-scale weighbeam, a load-receiving element being provided depending from the load pivot, and equilibrium being established during the substitution weighing by means of the weighbeam poise and/or load applied on the counterpoise hanger.

The essential characteristics for balance or testing beam are sensitiveness and repeatability—sensitiveness such that for a given load there will be a readable response from the mechanism to load changes of less than one-half the minimum tolerance to be applied; and repeatability such that the balance or beam will consistently give the

[1] See National Bureau of Standards Miscellaneous Publication M74, Report of the Nineteenth National Conference on Weights and Measures.

same indication, within reasonable limits, for the same conditions of loading.

A platform scale, even though of small capacity, of good design and construction, and in good condition will ordinarily not be sufficiently sensitive for adjustment calibration of weights of group 1; a scale suitable for maintenance calibrations of weights of this group, may, at times, be available.

Weights of denominations of 200, 300, and 400 pounds are seldom made, and therefore no special consideration will be given to the calibration of these weights. The remaining weights of group 2—500 and 1,000 pounds—are, however, the denominations most frequently employed in vehicle-scale testing where adequate test-weight loads are provided, and their proper calibration is, therefore, a matter of increasing importance as the number of testing units equipped with such weights increases.

The type of platform scale ordinarily available, or readily procurable at relatively low cost, is not suitable for the calibration of 500- and 1,000-pound weights or, for that matter, of weights of group 3, by reason of being insufficiently sensitive and of having unsatisfactory repeatability characteristics. Platform scales of superior construction can be procured which will be satisfactory for such weight calibrations but even with the best equipment, precision methods must be used and the weights must be calibrated by substitution against standards carefully and accurately built up. These scales must be used practically like balances, with refined means for determining weighbeam rest points, and great care must be exercised in the application and removal of loads to avoid any disturbance or derangement of parts which would adversely affect the accuracy of the results. Also, independent, duplicate observations should be made in order to detect errors of observation or computation, or any erratic performance on the part of the scale being utilized as the comparing means; if the results are discordant, observations should be repeated until a set of values is obtained which appears, upon analysis, to be reliable.

The greater simplicity of a testing beam as compared with a platform scale, its probably superior accuracy, repeatability, and sensitiveness when properly designed and constructed, and the greater ease with which a testing beam can be used if all details have been carefully worked out to adapt it to its particular service, are factors which strongly recommend the testing beam over the platform scale for weight calibration. Since the market for testing beams is limited, they will probably usually be built to special order, and thus the official is in a most favorable position to have basic designs modified to adapt them to his special needs.

Accordingly, the Bureau recommends to weights and measures officials the procurement of testing beams whenever weights of denominations of 500, 1,000, and 2,500 pounds are in use. For weights of the two smaller denominations, the same beam may satisfactorily be used; it is probable that a 2,500-pound beam would not be entirely satisfactory for 500- and 1,000-pound weights because of lack of needed sensitiveness at these smaller loads, but it is also probable that no official would need to procure two beams, for our observations indicate that a vehicle-scale testing unit designed to utilize weights of the two smaller denominations does not employ the 2,500-pound denomination, and vice versa. The Bureau is without information

as to the practicability of weight-testing beams of capacities in excess of 2,500 pounds, although it would appear that such beams might well be expected to yield results comparable with those obtained with beams of smaller capacity; for the present, however, our recommendation for equipment for the calibration of 5,000- and 10,000-pound weights is confined to what may be termed a "precision" platform scale.

As to testing beams for 500- and 1,000-pound weights, which will be in most demand, it appears first that these should normally be designed for installation in a fixed location, in order to provide the maximum of stability for the associated parts and thus contribute toward good repeatability in use. In other words, better results are to be anticipated if the weights are brought to the beam than if the beam is designed as a portable unit to be taken to the weights. It may be noted parenthetically that the 1,000-pound testing beam of the Bureau, designed for the calibration of the weights carried by our Vehicle-Scale Testing Unit, is necessarily of the portable type, because this must be sent into the field from time to time for use when the Unit is operating in territory distant from Washington.

Two basic designs for a testing beam naturally suggest themselves, the equal-arm type and the unequal-arm type; each of these possesses certain advantages, but considering all factors, it is probable that the unequal-arm type will give the more general satisfaction. For an unequal-arm type of testing unit, one lever or two levers may be utilized. It is considered that the multiple of any one of these levers should never be greater than 10. A multiple of 5, 10, or 20 is recommended for the unit as a whole—5 or 10 for the single-lever unequal-arm type and 10 or 20 for the compound-lever type; a 1,000-pound load would thus be counterpoised at the tip of the unit by 200, 100, or 50 pounds. Since the substitution method of calibration is definitely recommended, it will be apparent that accuracy of arm length, or ratio, of the unit is of secondary importance, although the official would not wish to have and the manufacturer would not wish to release a unit with an arm-length error of any considerable magnitude.

Suitable means should be provided to permit ready application and removal of the main and counterpoising loads without undue derangement of the working parts of the unit, and the main load-receiving element should be designed to accommodate easily weights of the particular dimensions of those to be calibrated. Some suitable means should be provided for arresting and releasing the mechanism or for supporting the load-receiving elements during the loading and unloading operations. A refined means should be provided for determining with precision the rest point of the unit on each observation. Workmanship on the pivots and bearings should be of high quality, and loads per lineal inch of knife-edge should be kept low.

It will be obvious that an equal-arm testing beam is used in the same general manner as an equal-arm balance, these two instruments differing essentially only in capacity. The use of the unequal-arm testing beam is equally simple; the same principles and the same general procedure are to be observed as in the case of the equal-arm type. It may be appropriate again to mention Mr. Pienkowsky's paper where the principles and procedure in question are explained in detail.

Weights of any denomination from perhaps 10 to 100 percent of the capacity of a testing beam may be calibrated by substitution on the main load-receiving element of an unequal-arm beam, and similarly weights of any denomination not exceeding the designed maximum load on the counterpoising element may be calibrated by substitution at that point; thus on a 1,000-pound beam having a multiple of ten, 50-, or 100-pound weights may be compared with standard weights by substitution on the load-receiving element at the tip of the unit, whereas on a similar unit having a multiple of 20, the load on the counterpoising element would be limited to 50 pounds, making it necessary to use the main load-receiving element for any weights in excess of this denomination.

In conclusion, it is urged that weights and measures officials give the same careful attention to their large-denomination test weights as they are accustomed to give to test weights of small denomination, in order that these important working standards may be kept in proper condition. The accuracy of these large weights should be unquestioned, and their appearance should be consistent with their importance; these ends may be realized if the weights are well-designed and constructed, if they are handled with reasonable care when in use, if they are reconditioned whenever their appearance becomes less than good, and if they are regularly and carefully calibrated upon a suitable testing instrument.

The CHAIRMAN. This concludes our program, but the secretary has an announcement to make.

Mr. HOLBROOK. I want to announce something that many of you have already discovered; copies of the report of the Committee on Specifications and Tolerances are available on the desk here. This report is to be made tomorrow morning and therefore, if you want to study it, you will have an opportunity to do so.

Mr. PISCIOTTA. Mr. Chairman, I thought we would adjourn tonight in memory of our good friend, Joe Cullen, and I want to make a motion to that effect.

(The motion was seconded, the question was taken by a rising vote, and the motion was unanimously agreed to.)

(At this point, at 4:35 p. m., the Conference adjourned, to meet at 10 a. m., Wednesday, June 7, 1939.)

THIRD SESSION—MORNING OF WEDNESDAY, JUNE 7, 1939

(The Conference reassembled at 10:15 a. m., at the National Bureau of Standards; Lyman J. Briggs, President of the Conference, in the chair.)

APPOINTMENT OF COMMITTEES

The CHAIRMAN. The Chair would like to announce the appointment of the following Committees:

Committee on Resolutions:
W. S. Bussey, Texas, chairman.
H. N. Davis, Vermont.
J. M. McLeod, Nevada.
A. J. Jensen, North Dakota.
V. Bruschi, Jr., San Diego County, Calif.
Tom Webb, Nashville, Tenn.
Mrs. Clark McQuilkin, East Chicago, Ind.

Committee on Nominations:
Rollin E. Meek, Indiana, chairman.
Charles C. Read, New Jersey.
M. A. Hubbard, Virginia.
J. C. Tinkey, Ohio.
James A. Boyle, Portland, Maine.
Harry E. Biery, Allentown, Pa.
Louis G. Waldman, St. Louis, Mo.

I will ask the chairmen of these Committees to arrange for proper meetings and reports.

RESEARCH PROGRAM ON VOLUMETERS OF THE ASME SPECIAL RESEARCH COMMITTEE ON FLUID METERS

By HOWARD S. BEAN, *National Bureau of Standards*

The Special Research Committee on Fluid Meters of the ASME was organized in 1916. Its special duties were to collect and correlate available data on fluid meters, to conduct or cooperate in original research on fluid meters, and to prepare for publication reports of its findings. Its first report was issued in 1924 and was prepared almost entirely from information collected from several sources. In the next 6 years this report was revised and reissued twice.

In 1931 the committee joined with the Gas Measurement Committee of the American Gas Association in completing an extensive research program on square-edged orifices. The results of this joint work were published in 1935 and are now very generally used where fluids are metered with square-edged orifices.

In this same year, 1935, the committee started a research program on another form of differential producer for rate of flow meters, namely, the flow nozzle which is sometimes called an orifice of rounded approach. The necessary experimental work and tests for this program have been very nearly completed and it is hoped that a report of this work will be ready this year.

A year ago the committee decided to take up the study of volumeters, commonly referred to as displacement meters. Accordingly, a subcommittee was appointed to plan and carry out a thorough research program on these meters. Those appointed on this subcommittee are: R. J. S. Pigott, chairman of both the subcommittee and main committee, and staff engineer of the Gulf Research and Development Corporation; A. J. Kerr, district manager, Pittsburgh Equitable Meter Co.; S. R. Beitler, Ohio State University; M. J. Zucrow, consulting engineer; and your speaker. To the last member has been detailed the work of assigning and coordinating the experimental work between such laboratories as that of the Engineering Department of the University of Oklahoma and the United States Bureau of Mines at Bartlesville, Okla.

The subcommittee is of the opinion that this research should be planned so as to include, ultimately, volumeters for all kinds of fluids, gaseous as well as liquid, and also that the effect of associated conditions, such as location, type of flow, and uniformity of the state of the fluid, should be given attention.

The following is an outline of the general program:

A. Types of Meters to be Studied:
  I. Piston types:
    a. Cylinder and piston, in duplex and swash plate.
    b. Square piston.
    c. Bellows.
  II. Rotary:
    a. Sliding and swinging vane.
    b. Oscillating ring.
    c. Nutating disc.
    d. Wet gas meter.
    e. Lobed impeller.
  III. Inferential:
    a. Turbine meters.
  IV. Weight meters.
B. Things to be Studied:
  I. Nature of errors in volumeters:
    a. Slip-sealing.
    b. Pressure slip relationship.
    c. Mechanical and hydraulic friction.
    d. Recording mechanism load.
      Variation of this load due to wear and corrosion of mechanism.
    e. Pressure drop required to drive.
    f. Distortion of case due to internal pressure.
    g. Displacement as a reference value.
    h. Variations between meters of same make and size and between different sizes of same make.
  II. Effects of associated conditions:
    a. Uniform fluids—elimination of foreign liquids or gases.
    b. Elimination of solids.
    c. Effect of meter pulsations.
    d. Effect of line pulsations.
    e. Materials and design for strength and durability.
    f. Arrangement of piping before and after a meter.
C. Things to Work With:
  I. Theoretical material to guide testing:
    a. Slip formulation.
    b. Bearing, packing, liquid shear, and register friction.
    c. Relation between displacement line and calibration line, and effect on apparent corrections.
  II. Test equipment factors to be considered:
    a. Size relative to capacity of meter.
      1. Measuring device large enough to handle maximum flow rate of meter over significant period of time.

b. Precision.
   1. For liquids, measuring device should be within five-hundredths of a percent.
   2. Means provided for controlling temperatures and pressures within close limits.
c. Elimination of gas effects for liquid meters.
   1. Adequate separation before metering.
   2. Liberation of absorbed gas in passing through meters.
   3. Evaporation of light ends after metering.
d. Humidity corrections.
e. Temperature and pressure corrections.

D. Test Program:

I. For accuracy:

At least two sizes of each type (or make). Tests at five or more rates and with three or more viscosities for liquids; air and gas (natural) for gas meters.

II. Durability:

Eight to ten months on continuous full-flow operation with accuracy check tests at suitable intervals.

It will, of course, require several years to carry through so extensive a program. The first tests will be confined to a study of volumeters for crude and refined oils. These meters have been placed first on the program, because there is a great deal of interest in them at this time, and it appears probable that their use throughout the oil industry will increase very rapidly. Moreover, there is much uncertainty on such questions as the actual accuracies that are attainable, the rate of wear, and the effects of various associated conditions.

For the present the tests on oil meters will be made at the engineering laboratories of the University of Oklahoma, under the immediate supervision of E. E. Ambrosius. The manufacturers of these meters have been asked to assist the committee by submitting at least two sizes of meters, and if they make more than one type of meter, then two meters of each type. The object of the first tests is the determination of the accuracy of registration, over several rates of flow and with several grades (or viscosities) of refined oil. The meters will then be operated under simulated working conditions for 9 to 12 months, with check tests made at suitable intervals. Later, the committee expects to arrange to have some tests made at some pumping station or refinery where the meters can be operated under actual field conditions.

The committee has already discussed with the United States Bureau of Mines the question of their assisting in a study of the effects of such associated conditions as piping arrangements and the elimination of gas, salt water, and sediment. For this work the probable arrangement will be for the committee to provide for one or two assistants to work directly under the supervision of one of the Bureau of Mines staff.

Following the past policy of the Fluid Meters Committee, progress reports and papers on various phases of the work will be published from time to time as the research progresses. In these published reports each meter will be designated by a suitable symbol and every effort will be made to prevent these reports from being used as a basis for advertising or sales promotion. In addition to these published reports, there will be another group of reports, which may be termed individual reports, made to the meter manufacturers, giving the results of the tests on their own meters in detail, together with such criticisms and suggestions as the committee feels competent to offer.

It is the committee's hope that this program will produce results of real value and assistance to the meter manufacturers and the users, and

to the public through the various State agencies dealing with weights and measures and the conservation of resources.

THE CONSUMER LOOKS AT WEIGHTS AND MEASURES ADMINISTRATION

By D. E. Montgomery, *Consumers' Counsel, Agricultural Adjustment Administration, United States Department of Agriculture*

Dr. Briggs, ladies, and gentlemen: Two years ago at your Conference I came to discuss with you the need and possibilities of interesting this wide, rambling thing called the consuming public in the importance to them of the work which is done by you people. And again last year I spoke to you on the progress made up to that time, and I am here again to tell you of further progress.

During that 2-year interval since I first talked to you, the consumers movement has been gathering weight rapidly. This year, you might say, it is almost graduated from school and is becoming quite widely recognized by business groups everywhere and is becoming very much aware of itself. It is beginning to know pretty definitely what it wants and it is learning how to get it. This year there have been several large conferences held, business conferences and educational conferences, where this consumer movement has been the main topic of discussion. I came down last night from Buffalo, where the National Better Business Bureau had a 3-day discussion on consumer relations, where the consumer movement was well represented and spoke for itself very well indeed.

So I come back to the question we are interested in together. First of all, I want to report on some of the efforts of our Division to give greater publicity to the work of weights and measures officials.

The Consumers' Counsel Division issues a biweekly publication called the "Consumers' Guide." I think most of you are familiar with this publication. During the last year this publication carried five articles dealing with weights and measures activities. Two of these articles gave publicity to radio broadcasts for consumers dealing with weights and measures enforcement programs. One reviewed the historical background of weights and measures and two gave publicity to a nation-wide weights and measures contest which the Division conducted. The Consumers' Guide now goes to 135,000 ultimate consumers scattered in 48 States, and we feel that these articles on weights and measures affairs will create an increased interest in the work of your departments.

The Consumers' Counsel Division, in cooperation with the General Federation of Women's Clubs puts on each week a Consumer Time Broadcast, which is carried on the coast-to-coast Red Network of the National Broadcasting Co. Since the last meeting of the National Conference on Weights and Measures, this radio program has contained discussion of the importance of weights and measures enforcement programs on three occasions.

Probably the activity which has aroused most interest was the weights and measures contest sponsored by the Division. To publicize this contest, the Consumers' Guide carried a weights and measures quiz "How High is Your Consumer I. Q.?" Four hundred and

eleven consumers answered the forty questions included in the quiz and sent in two weights and measures slogans. Entries came in from every State in the Union but two. It happens that two persons answered all of the 40 questions correctly, but the judges thought that the slogans of Mrs. Paul Clumpner, a housewife of Metaline Falls, Wash., were superior, and so she was awarded the first prize, an excellent household scale provided by the Virginia Association of Weights and Measures Officials. At this time, I want to take this opportunity to thank the Virginia Association for the contribution of this fine prize. I also want to thank J. G. Rogers, Assistant State Superintendent of Weights and Measures of New Jersey, George Warner, Chief of the Bureau of Weights and Measures of Wisconsin, and B. W. Ragland, Chief of the Bureau of Weights and Measures of Richmond, Va., for acting as judges of this contest.

(At this point Mr. Montgomery presented and discussed the results of a Consumer Standards Project of the Consumers' Counsel Division, which comprised a study of weights and measures administration. This material is contained in tables 4 to 12, inclusive.)

TABLE 4.—*Proportion of States, cities, and counties having legal provisions conforming to the model weights and measures law and proportion not having such provisions, by type of regulation*

[Based on 22 States, 49 cities, and 20 counties]

Type of regulation or enforcement activity[1]	Proportion of jurisdictions conforming to model law in—			Proportion of jurisdictions not conforming to model law in—		
	States (1)	Cities (2)	Counties (3)	States (4)	Cities (5)	Counties (6)
	Percent	*Percent*	*Percent*	*Percent*	*Percent*	*Percent*
Testing commercial devices twice a year	27.3	53.1	60.0	68.2	42.9	30.0
Proving of standards every 5 years	40.9	83.7	85.0	40.9	12.2	10.0
Inspection of standards every 2 years	59.1	65.3	50.0	22.7	28.6	40.0
Issuance of regulations for law enforcement	86.4	75.5	80.0	9.1	14.3	10.0
Inspection of new equipment	54.5	87.8	65.0	40.9	8.2	35.0
Stamping or sealing of approved equipment	77.3	98.0	95.0	13.6	2.0	5.0
Condemnation and seizure of unapproved equipment	95.5	98.0	95.0	0.0	0.0	5.0
Arresting violators	86.4	89.8	80.0	9.1	8.2	15.0
Penalty for first offense	31.8	22.4	35.0	63.6	67.3	55.0
Penalty for repeated offenses	27.3	22.4	35.0	63.6	61.2	55.0
Labeling packages with net weight	81.8	91.8	95.0	18.2	6.1	5.0
Prohibition of use of misleading containers	45.5	69.4	85.0	50.0	20.4	10.0
Requiring weight tickets for coal, coke, and charcoal	68.2	91.8	90.0	27.3	8.2	10.0
Standard units for:						
Bread	45.5	57.1	45.0	54.5	38.8	45.0
Butter and oleomargarine	50.0	61.2	85.0	50.0	28.6	15.0
Milk	81.8	81.6	90.0	13.6	14.3	10.0
Coal	86.4	81.6	95.0	9.1	12.2	5.0
Wood	68.2	73.5	85.0	27.3	24.5	15.0
Berries and small fruits	90.9	91.8	95.0	4.5	6.1	0.0
Vegetables and fruits (except cranberries)	59.1	67.3	70.0	27.3	14.3	25.0
Support of department by taxation	77.3	79.6	100.0	22.7	18.4	0.0
Bonding of administrative officers	54.5	49.0	55.0	36.4	46.9	45.0
Employment of inspectors from civil service lists	18.2	57.1	35.0	81.8	36.7	60.0
Discharge of personnel	36.4	69.4	50.0	63.6	22.4	40.0

[1] These are condensed statements of the type of regulation or enforcement activities—see model weights and measures law for more comprehensive statements of the requirements. The model law may be found on pages 237–258 of "Weights and Measures Administration," Handbook H11 of the National Bureau of Standards (1927).

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TABLE 5.—*Average budget for weights and measures activities in 1 year, as determined for designated number of States, cities, and counties, by population*

Population	Average budget for [1]—			Range of budget for [1]—			Number of—		
	States (1)	Cities (2)	Counties (3)	States (4)	Cities (5)	Counties (6)	States (7)	Cities (8)	Counties (9)
	Dolls	*Dolls*	*Dolls*	*Dollars*	*Dollars*	*Dollars*			
Under 20,000	------	1,200	------	----------	----------	----------	----	1	----
20,000 to 29,999	------	------	1,026	----------	----------	400 to 2,300	----	----	7
30,000 to 39,999	------	756	2,460	----------	0 to 1,512	1,850 to 3,200	----	2	8
40,000 to 49,999	------	3,133	1,982	----------	2,179 to 5,108	0 to 3,945	----	7	10
50,000 to 99,999	------	2,959	2,409	----------	0 to 14,200	0 to 6,347	----	19	12
100,000 to 149,999	------	5,276	6,262	----------	1,700 to 10,283	0 to 11,551	----	9	6
150,000 to 199,999	------	7,120	7,208	----------	2,466 to 14,825	1,500 to 12,602	----	5	4
200,000 to 249,999	------	14,684	5,806	----------	4,010 to 26,180	2,250 to 14,875	----	4	4
250,000 to 499,999	16,500	14,595	5,931	8,500 to 31,000	2,100 to 34,580	2,220 to 13,590	3	13	7
500,000 to 999,999	15,908	28,872	31,320	8,940 to 29,436	10,500 to 50,171	21,865 to 40,775	4	5	2
1,000,000 to 1,999,999	------	21,500	29,480	----------	----------	----------	----	1	1
2,000,000 to 2,999,999	14,333	48,000	80,524	0 to 25,000	----------	----------	3	1	1
3,000,000 or above	45,774	186,160	------	21,000 to 64,000	----------	----------	5	1	----
Average	25,667	11,948	6,845	----------	----------	----------	----	----	----
Total	------	------	------	----------	----------	----------	15	68	62

[1] The averages in columns (1), (2), and (3) show that in general the budgets for weights and measures activities in jurisdictions of medium or large population exceeded the budgets for those of small population. Individual exceptions to this main tendency were found, however. There was a wide spread or range of the budgets for the jurisdictions in a population class as is evident from columns (4), (5), and (6).

TABLE 6.—*Average size of staff, as determined for weights and measures agencies in designated number of States, cities, and counties, by population*

Population	Average number of persons on staff for [1]—			Range of staff for [1]—			Number of—		
	States (1)	Cities (2)	Counties (3)	States (4)	Cities (5)	Counties (6)	States (7)	Cities (8)	Counties (9)
Under 20,000	--------	2.0	1.0	--------	--------	--------	--------	1	1
20,000 to 29,999	--------	--------	1.1	--------	--------	0 to 2	--------	--------	7
30,000 to 39,999	--------	1.7	1.6	--------	1 to 2	1 to 2	--------	3	8
40,000 to 49,999	--------	1.6	1.6	--------	1 to 2	1 to 3	--------	7	10
50,000 to 99,999	--------	2.1	1.8	--------	1 to 6	1 to 4	--------	21	13
100,000 to 149,999	--------	2.4	3.2	--------	1 to 6	1 to 5	--------	11	6
150,000 to 199,999	--------	4.2	3.0	--------	2 to 7	1 to 5	--------	6	5
200,000 to 249,999	--------	7.0	2.8	--------	3 to 10	1 to 5	--------	4	4
250,000 to 499,999	4.0	6.1	3.1	3 to 5	2 to 12	1 to 5	3	15	7
500,000 to 999,999	5.2	13.2	10.3	4 to 7	7 to 20	7 to 14	4	5	2
1,000,000 to 1,999,999	7.0	12.0	12.0	6 to 8	--------	--------	2	1	1
2,000,000 to 2,999,999	9.7	16.0	39.0	4 to 17	--------	--------	3	1	1
3,000,000 or above	16.0	65.5	--------	3 to 31	46 to 85	--------	8	2	--------
Average	10.2	5.9	3.1	--------	--------	--------	--------	--------	--------
Total	--------	--------	--------	--------	--------	--------	20	77	65

[1] In general, the larger the population of a State, city, or county the larger was the number of persons engaged in weights and measures supervision, which tendency is indicated by the averages in columns (1), (2), and (3). The ranges in columns (4), (5), and (6) suggest small staffs, as a rule. For cities or counties staffs of 3 persons or less were in the majority, and for States staffs of 7 persons or less.

TABLE 7.—*Summary of results of weights and measures testing activities in 1 year, by type of apparatus*

[States, cities, and counties combined]

Type of apparatus	Number of States, cities, and counties represented [1]	Total number examined [1]	Proportion per jurisdiction [2]			
			Approved without adjusting [3]	Approved after adjusting [4]	Condemned for repair [4]	Confiscated and destroyed [5]
	(1)	(2)	(3)	(4)	(5)	(6)
		Units	*Percent*	*Percent*	*Percent*	*Percent*
Scales	70	913,628	83.2	9.1	7.0	0.7
Weights	63	974,113	95.0	2.0	1.2	1.8
Pumps and retail-type meters	72	530,511	83.6	7.6	8.4	0.4
Miscellaneous	67	25,807,063	94.4	1.7	2.8	1.1

[1] Subject to revision.
[2] Sum of proportions for all jurisdictions divided by total number of jurisdictions, expressed as percentage; each percentage in columns (3), (4), (5), and (6) is therefore an average.
[3] Weights and miscellaneous apparatus required less adjustment than scales, and pumps and retail-type meters.
[4] From the standpoints of adjustment and condemnation for repairs, scales and retail-type meters required more attention.
[5] Confiscations in no instance averaged as high as 2 percent.

TABLE 8.—*Miscellaneous apparatus: Summary of results of weights and measures testing activities in 1 year, by class*

[States, cities, and counties combined]

Class	Number of States, cities, and counties represented [1]	Total number examined [1]	Proportion per jurisdiction [2]			
			Approved without adjusting [3]	Approved after adjusting [4]	Condemned for repair [4]	Confiscated and destroyed
	(1)	(2)	(3)	(4)	(5)	(6)
		Units	*Percent*	*Percent*	*Percent*	*Percent*
Liquid capacity measures	63	696,410	94.1	1.5	2.8	1.6
Milk bottles	24	22,583,294	99.2	----------	----------	0.8
Lubricating-oil bottles	41	1,127,372	99.1	0.1	0.2	.6
Dry capacity measures	40	1,256,725	93.7	----------	2.2	4.1
Linear measures	48	44,284	93.1	.5	3.5	2.9
Fabric-measuring devices	35	2,586	96.2	.9	2.9	----------
Taximeters	13	6,486	96.2	.9	2.9	----------
Calibrated vehicle tanks (fuel oil and gasoline)	67	9,178	83.4	13.3	3.2	0.1
Fuel-oil meters	37	6,195	83.6	11.4	5.0	----------
Wholesale-type gasoline meters	46	7,399	78.6	12.6	7.8	1.0
Gas meters (not gasoline)	3	670	90.0	5.5	4.5	----------
Electric meters	1	38	81.6	----------	18.4	----------

[1] See footnote 1, table 7.
[2] See footnote 2, table 7.
[3] In 8 of the 12 classes of apparatus, the average proportion approved without adjusting amounted to 90 percent or more. Officials approved nearly all milk bottles and lubricating-oil bottles tested. The average was lowest (78.6) for wholesale-type gasoline meters.
[4] More than 15 percent of the equipment tested of calibrated vehicle tanks, fuel-oil meters, and wholesale-type gasoline meters required adjustment or repair.

TABLE 9.—*Jurisdictions classified by proportion of weights and measures apparatus of each specified type approved after testing*

Type of apparatus tested	Number of jurisdictions represented [1]	Number of jurisdictions in which approved units of apparatus aggregated—					Number in which all apparatus was approved [3]	Number in which no apparatus was approved
		50 percent or more	60 percent or more	70 percent or more	80 percent or more [2]	90 percent or more [3]		
	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
STATES								
Scales	18	18	18	16	12	1	--------	--------
Weights	15	14	14	14	13	12	2	1
Pumps and retail-type meters	19	18	18	18	12	5	--------	1
Miscellaneous	17	17	17	16	14	14	4	--------
CITIES								
Scales	63	60	58	50	41	18	--------	1
Weights	56	56	56	56	55	53	9	--------
Pumps and retail-type meters	63	59	59	54	41	27	3	2
Miscellaneous	60	60	59	58	55	54	13	--------
COUNTIES								
Scales	59	59	53	46	36	20	--------	--------
Weights	57	57	57	57	57	55	8	--------
Pumps and retail-type meters	60	59	56	55	48	30	1	--------
Miscellaneous	61	58	58	58	57	55	16	1

[1] The total number of States, cities, or counties represented in the information in this column for any one type of apparatus would not equal the corresponding total stated in column (1), table 7. Data from city and county offices apparently were incorporated in some instances in reports from State officials.

[2] Of the weights and measures apparatus tested, at least 80 percent was found to be satisfactory in about two-thirds of the jurisdictions.

[3] The percentage approved was ordinarily higher for weights and miscellaneous apparatus than for scales and pumps, frequently running to 90 percent, sometimes to nearly 100 percent.

TABLE 10.—*Jurisdictions classified by proportion of weights and measures apparatus of each specified type found unsatisfactory on testing, with official action taken*

Type of apparatus tested	Number of jurisdictions represented [1]	Number of jurisdictions in which units of apparatus designated for—					
		Adjustment aggregated—		Repair aggregated—		Confiscation and destruction aggregated—	
		10 percent or more [2]	20 percent or more [2]	10 percent or more [2]	20 percent or more [2]	1 percent or more [2]	5 percent or more [2]
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
STATES							
Scales [3]	18	10	1	4	1	5	1
Weights [4]	15	1	1	1	1	8	1
Pumps and retail-type meters [5]	19	5	1	6	3	3	1
Miscellaneous	17	2	2	2	1	5	1
CITIES							
Scales [3]	63	28	12	17	5	21	4
Weights [4]	56	1				26	5
Pumps and retail-type meters [5]	63	19	6	22	10	6	2
Miscellaneous	60	5	3	1		23	6
COUNTIES							
Scales [3]	59	29	16	11	3	17	3
Weights [4]	57	1				24	4
Pumps and retail-type meters [5]	60	15	8	21	5	6	2
Miscellaneous	61	4	2	1	1	16	4

[1] See footnote 1, table 9, p. 52.
[2] Maximum percentages, all three classes of jurisdiction:

Type of apparatus	Adjustment, columns (2), (3)	Repair, columns (4), (5)	Confiscation and destruction, columns (6), (7)
	Percent	*Percent*	*Percent*
Scales	96	36	9
Weights	93	20	23
Pumps and retail-type meters	93	41	9
Miscellaneous	100	96	29

[3] Adjustments were most frequently reported for scales.
[4] The number of weights confiscated was relatively greater than the number of units of any other type of equipment.
[5] Pumps and retail-type meters were in the lead from the standpoint of condemnations for repair.

TABLE 11.—*Coal, bread, commodity packages*

[Distribution of States, cities, and counties according to the percentage of the total quantity found short in weight by inspecting officials]

Percentage short in weight	Number of— States (1)	Cities (2)	Counties (3)
COAL			
0		8	12
0 to 9 [1]	3	35	24
10 to 19	3	12	6
20 to 29	1	6	1
30 to 39		4	2
40 to 49			1
50 or over		4	2
Total	7	61	36
BREAD			
0		9	11
0 to 9 [1]	5	28	24
10 to 19	2	13	5
20 to 29		4	2
30 to 39		3	2
40 to 49		2	
50 or over			
Total	7	50	33
COMMODITY PACKAGES			
0		4	
0 to 9 [1]	7	37	35
10 to 19	3	14	6
20 to 29	1	5	5
30 to 39		4	4
40 to 49		1	
50 or over		3	1
Total	11	64	51

[1] Includes 0 class. In general, less than 10 percent of the quantity of coal, bread, or commodity packages, weighed by inspecting officials, was found short in weight; many of the reports, however, disclosed larger proportions. On the whole, the proportions for cities exceeded those for States or counties.

TABLE 12.—*Comparison of three selected cities with respect to weights and measures activities*

[Population group 300,000 to 400,000]

Item	City *A*	*B*	*C*
STAFF			
Weights and measures inspectors (number)	1	3	2
Administrative staff (number)	7	2	1
Total staff (number)	8	5	3
BUDGET			
Furnished (dollars)	18,000	12,500	5,941
Fees collected but not segregated for use by department (dollars)		2,394	362
Budget needed (dollars)	18,000	19,160	9,000

TABLE 12.—*Comparison of three selected cities with respect to weights and measures activities*—Continued

Item	City A	City B	City C
TESTING ACTIVITIES			
Establishments within jurisdiction (number)	3,600	4,500	4,000
Establishments visited (number)	3,600	3,500	3,000
Visits made (number)	7,200	8,000	3,778
APPARATUS TESTED			
Scales:			
Examined (number)	11,256	4,129	796
Approved without adjusting (percent)	98.2	49.4	64.2
Approved after adjusting (percent)	0	34.1	0
Condemned for repair (percent)	0.8	15.5	35.8
Confiscated and destroyed (percent)	0.4	1.0	0
Weights:			
Examined (number)	17,288	1,679	4,393
Approved without adjusting (percent)	92.6	86.0	98.82
Approved after adjusting (percent)	0	13.2	0
Condemned for repair (percent)	0	0.8	0.02
Confiscated and destroyed (percent)	7.4	0	1.16
Pumps and retail-type meters:			
Examined (number)	6,361	2,447	2,609
Approved without adjusting (percent)	99.9	78.8	78.7
Approved after adjusting (percent)	0	0.3	0
Condemned for repair (percent)	0.1	20.9	21.3
Confiscated and destroyed (percent)	0	0	0
Liquid capacity measures:			
Examined (number)	5,170	1,849	470
Approved without adjusting (percent)	99.9	80.3	98.9
Approved after adjusting (percent)	0	12.0	0
Condemned for repair (percent)	0	7.7	0
Confiscated and destroyed (percent)	0.1	0	1.1
Total miscellaneous apparatus:[a]			
Examined (number)	17,973	2,038	7,025
Approved without adjusting (percent)	99.8	71.2	99.6
Approved after adjusting (percent)	0	21.9	0
Condemned for repair (percent)	0.1	6.9	0.3
Confiscated and destroyed (percent)	0.1	0	0.1
SUPERVISORY ACTIVITIES			
Coal:			
Loads weighed under supervision (number)	36	0	100
Loads found short of weight (percent)	2.8	----------	10.0
Bread:			
Loaves weighed under supervision (number)	600	3,800	1,000
Loaves found short of weight (percent)	5.0	21.1	0
Commodity packages:			
Packages weighed under supervision (number)	2,801	3,882	39,619
Packages found short of weight (percent)	4.7	39.5	13.8
PROSECUTION ACTIVITIES			
Prosecutions made (number)	2	27	6
Total amount of fines imposed (dollars)	([b])	470	85
Jail sentences (number)	0	0	0
Are penalties adequate?	Yes	No	No

[a] Includes liquid capacity measures.
[b] 1 fine imposed.

DISCUSSION OF ABOVE PAPER

The CHAIRMAN. Have you any questions to ask Mr. Montgomery in connection with this very interesting survey?

Mr. C. P. SMITH. I would like to ask Mr. Montgomery if these percentages of short weight are not larger than those which actually exist throughout the country.

Mr. MONTGOMERY. Yes. I tried to show that situation. I think the high percentages would be due in part to the fact that there is a selective testing on the part of the weights and measures officials. I presume they have some basis for judging where such an investigation be made.

Mr. C. P. SMITH. When I go into a store, I check the different packages, and when I find they are averaging correct, I won't weigh many packages. But when I find a store with short-weight packages, I then weigh more. That would bring the percentage of short packages very much higher.

Mr. MONTGOMERY. Yes. We are, of course, presenting this report for public distribution and will send it to you and to all of the people who send in questionnaires. But in using it, we will point out what you have mentioned.

Mr. QUINN. Do you have such a model ordinance, as you were speaking of?

Mr. MONTGOMERY. The National Bureau of Standards has a model ordinance which we used in drafting this questionnaire.

The CHAIRMAN. Mr. Holbrook, do you wish to discuss that question?

Mr. HOLBROOK. The model law was one of the very early actions of the Conference. It was first drafted in perhaps 1911 or 1912. That model law now forms the basis of the laws of a very large number of our States. It has been kept in touch with changing conditions from time to time by such amendments as were found necessary by the Conference. The model law as it stands is recommended by the Conference and by the National Bureau of Standards for adoption by the States.

Mr. QUINN. Are copies available of that?

Mr. HOLBROOK. This material will be found in the Conference reports and also in National Bureau of Standards Handbook No. 11.

Mr. HARRISON. I would like to ask Mr. Montgomery a question with respect to his figures of percentage of shortage in deliveries. I notice, among other things, he has figures indicating a rather large percentage of shortage in retail deliveries of coal. Does your data represent any research as to the normal amounts of the deliveries? What I am getting at is that in certain places there are a great many deliveries of coal in very small amounts, not by a truckload but in bags, for instance. Do your figures indicate any distinction between those small deliveries and the large deliveries?

Mr. MONTGOMERY. No; the report doesn't indicate that.

Mr. HARRISON. When you got shortages of as much as 50 percent, which I believe you have recorded, I am just wondering to which class it applies.

Mr. MONTGOMERY. No; it wasn't a shortage of 50 percent. The table shows that in 50 percent of the tests made of weights, a shortage was found. It doesn't tell how much they were short.

Mr. HARRISON. I got the other idea.

Mr. MONTGOMERY. I tried to make it clear. The percentages in table 11 indicate in how many of the tests a shortage was found. It doesn't tell how much they were short. But even on that basis, a 50-percent report, of course, is extraordinarily high. You wouldn't expect 50 percent of the deliveries tested to be short, unless, as it has been suggested, the sealer knew where he was going to find trouble

and made his investigations in those places. That seems to me a very reasonable thing to do.

REPORT ON THE TESTING OF VEHICLE SCALES BY THE NATIONAL BUREAU OF STANDARDS

By Ralph W. Smith, *National Bureau of Standards* [1]

This report is a continuation of the series begun in 1937, presenting the results of the National Bureau of Standards tests of vehicle scales made in cooperation with the States. The present report will follow the plan inaugurated last year of presenting data, not limited to results obtained during the past year, but upon the results from the beginning of the vehicle-scale testing service. This report, then, is concerned with the study of the results of the Bureau tests for the period November 1936 to April 1939.

During the past year the Vehicle-Scale Testing Unit of the Bureau has not been operated continuously; moreover, it has not been found practicable to include in this report, data for the past month's operation. Since the report made to the last Conference, testing schedules have been completed in the States of West Virginia, Ohio, Kentucky, Indiana, Arkansas, and Missouri, and in the city of Detroit, Mich. There have thus been completed testing schedules in 22 States and in 1 large city in another State. As before, the cooperating officials have been officers in charge of weights and measures departments where such departments have been in existence; in the States of Arkansas and Missouri, the Bureau program was carried on in cooperation with the State Highway Department in each case, although whenever the Unit visited a city having a local weights and measures official, such official cooperated during the tests made in his jurisdiction.

The Bureau has now made over 1,500 tests of vehicle scales. This report, however, is confined to the results of 1,449 tests, the remaining tests being on scales owned by the Federal Government or on scales not properly classified as "vehicle scales." In a very few instances a particular scale has been tested twice; in these cases each retest has been considered as a separate test for statistical purposes.

Of the 1,449 scales covered by this report, 563 scales, or 39 percent, have been wagon scales and 886 scales, or 61 percent, have been motor-truck scales. Three hundred and fifty scales, or 24 percent of the total number involved, have been equipped with automatic-indicating devices. Of these, 308, or 21 percent of the total number tested, have had automatic-indicating devices with a substantial weighing range, while the remaining 42 scales, or 3 percent of the total, have been equipped with "over and under" attachments in which the weighing range represented only a small proportion of the scale capacity.

Accuracy.—Statistical data are presented in the table which follows, scales being separated, first, on the basis of their type, and, second, upon the basis of their ownership or principal use. In compiling statistical data on tests, mean percentage errors are computed from the maximum percentage errors developed in the tests, regardless of the size or position of the test-weight load. Scales are classified as accurate or inaccurate upon the basis of the maintenance tolerance adopted by the National Conference on Weights and Measures, which,

[1] This paper was read to the Conference by F. S. Holbrook.

in general, may be said to be ±0.20 percent, applied to errors of the scale indications with respect to the standard-weight loads used.

Table 13 discloses that almost four out of five of the vehicle scales tested by the Bureau have been found to be inaccurate, and that the average percentage error—that is, the mean of the individual maximum percentage errors developed—is more than six and one-half times the basic tolerance of 0.20 percent. The average wagon scale was in error by more than the average motortruck scale, and the percentage of wagon scales found inaccurate was approximately 10 percent higher than the corresponding figure for motortruck scales.

TABLE 13.—*Vehicle-scale test results, November 1936 to April 1939*

Type, ownership, or use	Tested	Found accurate		Found inaccurate		Numerical mean of maximum percentage errors
	Number	*Number*	*Percent*	*Number*	*Percent*	*Percent*
Wagon scales	563	87	15.5	476	84.5	1.50
Motortruck scales	886	228	25.7	658	74.3	1.21
State, city, town, or county	118	23	19.5	95	80.5	.96
Coal or coke	835	182	21.8	653	78.2	1.15
Cotton or cotton products	162	42	25.9	120	74.1	1.67
Scrap materials	79	7	8.9	72	91.1	2.15
Miscellaneous farm products, including fruit and sugarcane	69	18	26.1	51	73.9	.94
Grain	54	15	27.8	39	72.2	2.03
Stone, sand, or gravel	47	6	12.8	41	87.2	1.72
Public weighing	26	5	19.2	21	80.8	3.51
Miscellaneous	59	17	28.8	42	71.2	1.01
Total	1,449	315	21.7	1,134	78.3	1.32

A graphic presentation of test results follows. This graph is divided into two parts. The upper portion shows percentages of scales found accurate and inaccurate and the percentages of scales having plus and minus errors; the lower portion classifies maximum errors of inaccurate scales on the basis of their magnitudes. It will be seen that there is no significant preponderance of either plus or minus errors, and that the frequency of occurrence of errors of particular magnitudes decreases as the magnitudes increase. For purposes of comparison, the scales found accurate are plotted at the right of the lower portion of figure 2.

As to scales used for particular purposes, it is significant that the highest percentage of scales found inaccurate is found in the scrap-material group, with more than 9 out of 10 scales found inaccurate, and that the building-materials group—handling stone, sand, and gravel—is in almost as bad condition. It would appear that dealers in these commodities, which on the whole sell for low unit prices, are less particular about their weighing devices than dealers in other commodities, notwithstanding the fact that an error of 1 percent, for instance, on the revenue from a business is equally serious whatever the unit price of the commodity handled.

The scales reported upon include 38 scales found to have maximum errors in excess of 5 percent of the test-weight loads; these errors range from 5.10 to 66.56 percent. If these 38 scales were to be disregarded because of their abnormally large errors, and if the mean errors were to be recomputed for the groups affected, the mean of the maximum errors would be reduced as shown in table 14.

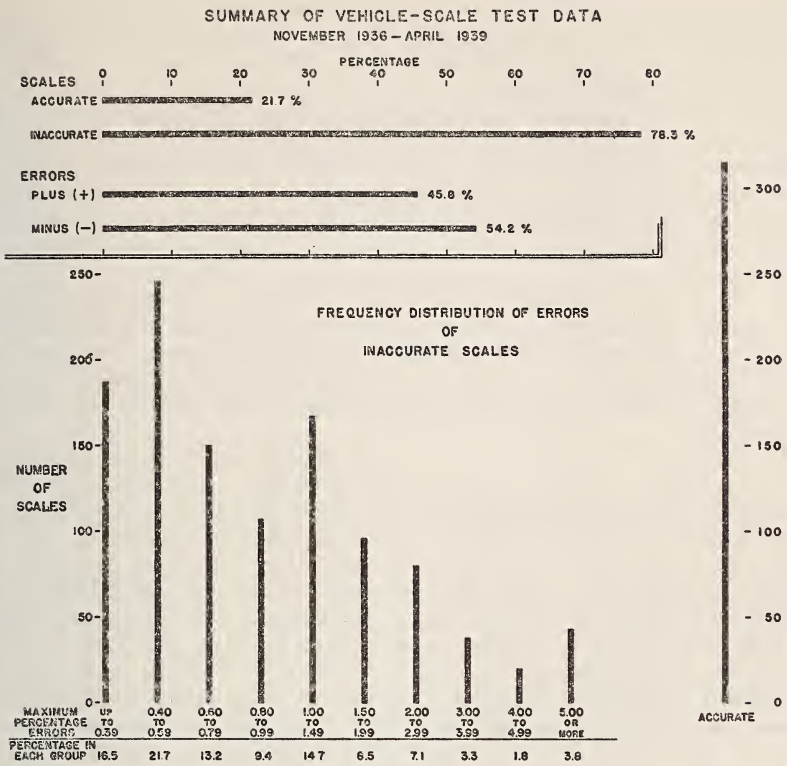

FIGURE 1.

TABLE 14.—*Numerical mean of maximum percentage errors*

Type, ownership, or use	All scales	Excluding 38 scales having abnormally large errors
	Percent	*Percent*
Wagon scales	1.50	1.05
Motortruck scales	1.21	0.75
State, city, town, or county	0.96	0.76
Coal or coke	1.15	.88
Cotton or cotton products	1.67	.76
Scrap materials	2.15	1.10
Miscellaneous farm products, including fruit and sugarcane	0.94	0.71
Grain	2.03	.76
Stone, sand, or gravel	1.72	1.00
Public weighing	3.51	0.88
Miscellaneous	1.01	.93
Total	1.32	0.86

The foregoing data show a material reduction in the magnitude of the average percentage errors for each group, as a result of the elimination of those scales having abnormally large individual errors. However, the average figure is still more than four times the basic tolerance, whereas the average error for one group—scrap materials—is five and one-half times the basic tolerance. The proportional discrepancy between wagon and motortruck scales is greater than before.

the average error for the wagon type being more than one-third greater than for the motortruck type. Scales used for weighing scrap and building materials have the doubtful distinction of having the largest average errors.

A further study of the test results discloses that there was faulty agreement among the several bars of the weighbeams on scales not utilizing counterpoise weights, that weighbeam indications were inaccurate independent of scale-ratio errors on scales utilizing counterpoise weights, or that weighbeams which were subordinate to reading faces were inaccurate, in the case of approximately one-third of the scales tested.

There were encountered 141 scales utilizing counterpoise weights; this group comprised 10 percent of the total number of scales tested. There were utilized on these scales a total of 717 regular counterpoise weights of which 288, or 40 percent, were found to be accurate; 79, or 11 percent, were found to be heavy; and 350, or 49 percent, were found to be light.

Sensitiveness.—Sensibility reciprocal requirements were applicable to 1,093 scales, or 75 percent of the total tested. Of these scales, 502, or 46 percent, were not sufficiently sensitive; 578 scales, or 53 percent, were found to have SR values within the prescribed limits; and 13 scales, or 1 percent, were found to be in neutral or unstable equilibrium.

Zero-load balance.—Data on the condition of zero-load balance as scales were found, are available on 1,407 scales. Twenty-nine percent of this number, or 402 scales, were found to have zero-load balance errors in excess of 5 pounds; and, in addition, 30 scales, or 2 percent, were found to have been balanced at zero load by means of weighbeam poises, these scales being in reasonably good zero-load balance condition as found, but having serious zero-load balance errors when all poises were returned to zero positions. Of the scales reported as having zero-load balance errors, 14 scales had not been in service for several weeks prior to the dates of test, and for these there was reasonable excuse for the out-of-balance condition found. However, even excluding scales of the last-mentioned group and also scales balanced by means of weighbeam poises, a number of instances were found of zero-balance errors in excess of 100 pounds, and in one case, the zero-balance error was +450 pounds, and it was necessary to improvise a balancing weight for application on the counterpoise hanger in order to get the scale into condition for test.

Loads weighed.—The overloading of scales continues to be very much in evidence; in some sections it was found that the overloading of wagon scales was an almost universal practice. Upon the generally accepted criterion that a wagon scale is suitable for the weighing of motortruck loads only up to 60 percent of its "wagon" capacity, it has been found that 379, or 67 percent of the 563 wagon scales tested, have been overloaded. Motortruck loads equaling the "wagon" capacities of scales were reported as being weighed on 110, or 20 percent, of these wagon scales, which in 37 instances, or 7 percent, the motortruck loads being weighed exceeded the "wagon" capacities of the scales. Last year it was reported that the most serious instance of overloading was the case of a 12,000-pound wagon scale on which motortruck loads of 18,000 pounds were being weighed; this year we have to report that in the case of a 12,000-pound wagon scale encountered, motortruck loads of 20,000 pounds were being weighed, representing an overloading of 178 percent.

The loading of motortruck scales in excess of their rated, or of their nominal, capacities is less frequently found and, on the whole, is considered to be somewhat less serious when it does exist, by reason of the facts that the amount of the overloading is usually relatively small and that the scales themselves are probably designed and constructed with a sufficient safety factor so that they are better able to withstand the effects of overloading than are the relatively light wagon scales. One or two outstanding examples of motortruck scale overloading have occurred, however, where the scales have been equipped with automatic-indicating attachments, the excessive loads being weighed by utilizing both the weighbeam and the automatic-indicating elements.

It may be noted again in this general connection that when the Bureau tests a wagon scale, the test loads are limited to those which would be applied under conditions of proper use in accordance with the loading criterion previously stated. When a scale is overloaded it is probable that there may be developed errors more serious than those disclosed by the Bureau test.

At the other extreme from the conditions discussed immediately above, there are found many vehicle scales being used for the weighing of loads of less than 1,000 pounds, a practice contrary to the regulation adopted by the National Conference in 1937. Data on minimum loads being weighed on scales tested by the Bureau are available on 822 scales, of which number 415, or 50 percent, are reported as being used for the weighing of loads of less than 1,000 pounds. The weighing of loads of 100 pounds or less is reported in the case of 258 of these scales, or 31 percent of the number on which minimum-load data are available. It is not at all uncommon to find that loads as small as 10 pounds are being weighed on vehicle scales.

Results of Inspection.—The inspection of the lever system of a vehicle scale is a regular part of the Bureau routine and such inspections are made in all cases where access to the lever systems may reasonably be had. Because of the absence of means for access to the scale pits or because of the presence of water, mud, or excessive accumulations of dirt in scale pits, no pit inspection, or only partial pit inspection, has been possible in the case of 159 scales, or 11 percent of those tested.

Last year there were reported to the Conference a few of the unusual conditions disclosed by our inspections of vehicle scales. Among such conditions found during the past year, the following may be mentioned:

Serious interference developing under large loads between one or both weighbridge girders and one or more of the scale levers or other parts of the installation, appeared to be the principal fault in the case of 8 of the 18 scales found to have maximum percentage errors in excess of 5 percent; these scales may be tabulated as follows:

Use	*Maximum percentage error*
Coal	+5. 10
Coal	−6. 60
Sand, asphalt, coal (city scale)	−7. 47
Grain, miscellaneous farm produce	+16. 13
Coal, farm produce, public weighing	+17. 00
Grain, coal	−54. 05
Cotton, cottonseed	−57. 63
Public weighing	−66. 56

Three instances were found in which homemade extensions to platform or platform and weighbridge structures had been built in order to accommodate vehicles longer than those which could be weighed in one draft on the original platforms; scrap material was being weighed on two of these scales, while the third was used for public weighing and the sale of coal. At least these scale owners appeared to appreciate the desirability of getting all of a vehicle onto the scale platform at one time, and went to some pains to avoid two-draft weighing; for their apparent understanding of certain fundamental principles of weighing procedure they are to be commended even though their efforts resulted in the introduction of other factors of problematical effect.

In the case of one scale used for weighing farm produce, it appeared that the owner had wanted to widen the platform; in any event, nose-irons of makeshift construction had been bolted to the two short levers of this wagon scale, thus increasing the effective lengths of these levers by approximately 4 inches. Mud and water in the scale pit prevented a thorough inspection of the lever system, so the inspectors failed to discover what other faults may have existed. The maximum percentage error on this scale was −9.00 percent.

One scale was found to have a maximum percentage error of +12.33 percent at 3,000-pound load; on a 9,000-pound load applied at one end the error was +2.22 percent; and on a 15,000-pound load applied at the same end the error was −2.00 percent. Eight counterpoise weights were in use on this scale and all were found to be light; their combined error was equivalent to 158 pounds on the scale platform. This was a city-owned scale, over which a local ordinance required all coal sold in the city to be weighed. Unfortunately, the presence of a considerable amount of water in the scale pit made it impracticable to conduct an inspection of pit conditions.

One coal and public weighing scale had recently been through a fire, which had so melted the adjusting lead of the tare poise that this poise could not be moved from the zero position.

One scale used for weighing coal and farm produce and for public weighing was found to be installed with the tips of the main levers mounted over, instead of in the openings of, the end extension levers; to make this assembly, the bearing blocks for the main-lever tip pivots were mounted on top of the extension-lever load bearing blocks, thus constituting rigid compression bearings at these points.

A scale used for weighing cotton and coal was found to have one main lever which had been broken in two places; this was not surprising in itself, since the scale was a 12,000-pound wagon scale on which motortruck loads of as much as 17,000 pounds were being weighed. One of the breaks in the lever had been repaired reasonably enough by welding; the other was "repaired" by applying a metal "splint" to the under side of the lever and binding the splint to the two sections of the lever by means of wire.

The weighbeam of one wagon scale was fitted with a main poise from a weighbeam of different multiple, and several pieces of sheet lead were found loosely wrapped around the poise in an effort to bring it to proper value; this material shifted position when the poise was moved. The tare poise was missing entirely. The maximum percentage error of this scale was +14.67 percent, and on a 9,000-pound distributed load an error of +1,280 pounds developed.

On a sand and gravel scale which developed a maximum percentage error of —18.76 percent, it was found upon inspection that both load-suspension assemblies at one end were badly out of plumb and interfering with the main levers, and that on one side of the pit, accumulations of dirt were causing serious interference with the load-suspension assemblies. Incidentally, the indications of the automatic-indicating elements of this scale were so dim and blurred as to be almost illegible.

Associated primarily with the installation of a scale are the factors of accessibility to the scale parts in the pit for purposes of inspection and maintenance, provision for pit drainage, and the condition of the scale approaches. With respect to many factors involving elements of the lever systems, the faults disclosed by inspection may have resulted from faulty installation, they may have resulted from inadequate maintenance, or they may have resulted from a combination of poor installation and faulty maintenance.

In presenting statistical data resulting from our inspections of vehicle scales, it may be said that except for data on automatic-indicating elements, percentages reported are based upon the total number of scales examined, regardless of the fact that in some instances information could not be procured upon specific points by reason of the impracticability of inspecting the parts involved. The faulty conditions found upon inspection are summarized in table 15.

TABLE 15.—*Faulty conditions encountered in vehicle-scale installations*

Faulty condition	Occurrence	
	Number	*Percent*
Accessibility of lever system:		
Reported as "bad"	54	4
Reported as "poor"	307	21
Reported as "fair"	604	42
Reported as "good"	426	29
Reported as "very good"	55	4
No provision for pit drainage or information not available on this factor	761	53
Scale approaches:		
Rough	102	7
Curved	231	16
Inclined to scale platform	747	52
Inclined to scale platform at angle of 3° or more (included in preceding entry)	334	23
Water standing in scale pit and/or clogged pit drain	229	16
Accumulation of dirt in scale pit	606	42
Rusting structural steel in scale pit	491	34
Pivots and bearings of the lever system:		
No protection against corrosion	603	42
Only partial protection against corrosion	72	5
Rusting or dirty	681	47
Worn	225	16
Displaced from proper relative positions or displaced entirely from mutual contact	174	12
Levers out of level	324	22
Beam rod, bearing assemblies, and/or connections between levers out of plumb	550	38
Interference between, or inadequate clearance around elements of the lever system	203	14
Loose levers or lever extension arms	56	4
Faults associated with lever stands or supports	84	6
Faulty lever foundations	45	3
Faults associated with platform checking means	240	17
Clearances between scale platform and coping too large, too small, or both	569	39
Platform in need of repair	373	26
Platform not in surface alinement with coping	169	12
Inadequate clearance around beam rod	67	5
Weighbeam assemblies:		
Dirty, rusted, or tarnished	343	24
Mechanical faults associated with some part of the assembly	250	17
Loose parts or insecure mounting	193	13
Automatic-indicating elements:		
Interference in the mechanism	76	[a] 22
Faulty indications (does not include weighing inaccuracy)	34	[a] 10

[a] Based on 350 installations.

You will find on the Secretary's table, at the close of the meeting, mimeographed copies of these tables which have been presented. I thank you.

The CHAIRMAN: Are there any questions?

Mr. O'KEEFE. Will there be any copies of Mr. Holbrook's report available?

Mr. HOLBROOK. That report will shortly be available and it will be distributed to the delegates. In the meantime, we have this tabular material.

REPORT OF COMMITTEE ON SPECIFICATIONS AND TOLERANCES, PRESENTED BY JOHN P. McBRIDE, AND DISCUSSION THEREON

Your Committee on Specifications and Tolerances respectfully submits its report to the Conference for your consideration and action. This material was made available to you yesterday in mimeographed form and doubtless all of you now have a copy of it in your hands. The first portion consists of detailed amendments to several codes which are recommended for adoption; the second portion contains some material of a more general nature upon which you may desire to take action, also. As the report is read some brief explanations will be interpolated setting forth the reasons inducing your committee to make the various recommendations.

(Signed) F. S. HOLBROOK, *chairman*,
CHARLES M. FULLER,
JOSEPH G. ROGERS,
JOHN P. McBRIDE,
GEORGE F. AUSTIN, Jr.,
Committee on Specifications and Tolerances.

Mr. McBRIDE. The first section is concerned with liquid-measuring devices. [Reading:]

SECTION ON LIQUID-MEASURING DEVICES

Specification No. 5, under the above heading, reads, in part, as follows:

In a pump-discharge unit a mechanical air eliminator or other means shall be installed adjacent to the meter inlet.

Amend this specification to make this sentence read as follows:

In a pump-discharge unit a mechanical air eliminator or other means shall be provided in such a position that it will effectively prevent the passage of air or vapor through the meter.

Now, this change is recommended in view of a situation which has arisen in the case of meter installations. A good many meters now have a strainer embodied within the device proper. However, there are some strainers utilized in installations which are not built in the device. Under the language of the present specification, it seems that a strainer could not be installed between the air eliminator and the meter. This does not seem to be a proper requirement since the purpose of a strainer, of course, is to protect the meter, and if strainers were not allowed to be installed the meter would be subject to scale and slime and residue which might come from the air eliminator into the meter.

So your Committee recommends that this change be made as read.

(The amendment as proposed by the Committee was duly adopted.)

Mr. McBride (reading):

Specification No. 32, under the above heading, reads, in part, as follows:

All retail devices shall be so designed and constructed that *the initial zero condition and* the amount delivered shall be clearly and definitely indicated by automatic means, and the indication of any delivery shall take place only when the full discharge has, in fact, occurred:

Amend this specification to make this material read as follows:

All retail devices shall be so designed and constructed that *the initial zero condition and* the amount delivered up to the nominal capacity of the device shall be clearly and definitely indicated by automatic means *and this nominal capacity, if less than 50 gallons, shall be plainly and conspicuously indicated on each face of the device;* the indication of any delivery shall take place only when the full discharge has, in fact, occurred:

The purpose of that new language is to require a statement of nominal capacity in certain cases.

Mr. Thomas F. Rice. May I inquire if it be construed to mean whether the capacity would be required to be marked on a 20-gallon dial?

Mr. McBride. You would have to have some indication on each face of a 20-gallon dial to the effect that the capacity was 20 gallons.

(The amendment as proposed by the Committee was duly adopted.)

Mr. McBride (reading):

SECTION ON VEHICLE TANKS

Specification No. 5, under this heading, reads as follows:

5. Fill Openings and Indicators.—*The minimum dimension of the fill opening shall be 10 inches.* An indicator shall be provided within the fill opening of each compartment; *this indicator shall be permanently attached to the shell of the compartment* and shall be located approximately midway between the ends of the compartment. The indicator shall be so designed that it will clearly, distinctly, and unmistakably define the height to which the compartment must be filled in order to contain its marked capacity, *and the surface upon fill of the compartment shall be so reduced in area that the change in height of the liquid surface at the index of the indicator equivalent to the volume representing the tolerance on the compartment capacity shall in no case be less than 0.04 inch.* If this indicator is adjustable, it shall be so constructed that it can be sealed in such a manner that its position cannot be changed without destroying or mutilating the seal.

Amend this specification to read as follows:

5. Fill Openings and Indicators.—The fill opening shall be of such size that it can readily be determined whether or not the compartment has been properly filled or completely emptied, as the case may be, and that the attachment of the seal can be readily accomplished when such sealing is required by the terms of this specification: *Provided, however, That if the fill opening is circular its effective diameter shall in no case be less than 5⅝ inches, or if other than circular, it shall have an effective area of not less than 24 square inches.* An indicator shall be provided within the fill opening of each compartment; *this indicator shall be permanently attached* and shall be located approximately midway between the ends of the compartment. The indicator shall be so designed that it will clearly, distinctly, and unmistakably define the height to which the compartment must be filled in order to contain its marked capacity, *and the change in height of the liquid surface at the index of the indicator equivalent to the volume representing the tolerance on the compartment capacity, shall in no case be less than 0.04 inch.* An adjustable indicator and any removable part to which any indicator may be attached shall be so constructed that it or they can be sealed in place in such a manner that their position cannot be changed or that they cannot be removed without destroying or mutilating the seal or seals.

This specification is not to be construed to prohibit the employment of an additional indicator when such indicator is necessary in order to permit compliance with laws or regulations governing highway load limits and in such cases the capacities of the compartment when filled to each indicator shall be marked as provided in Specification No. 10.

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This, as you will recall, is a recurring question. The Committee now recommends that the fill opening shall be of such size that it can readily be determined whether or not the compartment has been properly filled or completely emptied. That is new, and likewise is new the provision that the minimum opening may be 5⅝ inches. The language in relation to the indicator and the manner of its attachment is new, as is also the entire last paragraph.

The Committee reached the conclusion that it was perfectly proper in given circumstances—as in the case of a compartment of small capacity—that a fill opening of 5⅝ inches be permitted, provided that in all cases the fill opening must be of such size that it can readily be determined whether or not the compartment has been properly filled or completely emptied, and that the attachment of the seal can be readily accomplished. We think this the fairest way out of the difficulty of a set minimum of 10 inches, which might impose a fill opening out of proportion to the size of a compartment. This new language affords elasticity.

The closing paragraph in relation to the provision for an additional indicator arises by reason of the highway load limitations imposed in certain jurisdictions. In some cases, compartment trucks may carry loads of different densities, for instance, gasoline one way and oil on a return trip. If they carried to the same fill point both of those commodities, they might find that the heavier liquid resulted in a violation of load limitation laws. As a result, the Committee feels it would be a proper thing to allow additional indicators in circumstances such as those.

Mr. Ragland. Mr. Chairman, for your information, I suggested the amendment to the Conference several years ago, specifying the minimum of 10 inches. I consider the new recommendation leaves it largely to the discretion of the sealer. If you can get to it to seal it, that is the requirement necessary, and I most heartily move that this recommendation of the Committee be adopted.

Mr. Davis. Mr. Chairman, I am opposed to the adoption of this amendment, if it is going to reduce the opening in the dome of the compartments. I feel sure that if a 5⅝-inch opening is allowed, it is going to cause a great hardship to the sealer who tries to make adjustments. I believe it will lead to the manufacturers continually using the smaller openings on their tank trucks. An opening that is the width of a man's hand and thumb is altogether too small. If Mr. McBride has ever tried to make those adjustments or to determine the filling point, I know he will bear me out in that.

When Mr. Ragland moved the adoption of this specification, I wondered "Why this change of heart?" He says it leaves it to the discretion of the sealer. Supposing it does, it is going to work a hardship with us. We should not abide by this, and if trucks come up from Massachusetts or New York and we can help it, we shall not allow these 5⅝-inch compartment openings.

I was against this proposition a year ago, and I have since talked with the sealer who has that matter in charge entirely in the State—the man who runs the testing unit. He said it was an utter impossibility to make those adjustments with a fill pipe much less than 10 inches in diameter.

Mr. Ragland. In reply to Mr. Davis about my "change of heart,"

I might say that Ragland is at all times willing to be convinced, and I so wrote Mr. Davis after last year's Conference.

Mr. McBride. Mr. Davis, your Committee took into consideration skinning the knuckles. But we insist upon two features—accessibility and visibility—and I think our experience will be that nominal 6-inch openings for tanks of small size will be satisfactory. We will have a smaller depth and you won't have the difficulty in getting in to seal the indicator, or with visibility to see whether the compartment is emptied or filled, if you confine it to those situations.

Mr. Crockett. Gentlemen, this 5⅝ inches is the old specification of last year under another dress. I have prepared here two openings (indicating). This one (indicating) is 5⅝ inches in diameter with an area of 24.85 inches, and a circumference of 17.6715 inches. These are not my figures; they are taken from a technical handbook. How can you do any work in it, I want to know, and get down into the tank with the seal press in your hands?

I have a small hand. With the various weights and measures departments all over the country working with reduced budgets and reduced staffs of men, their work has got to go on the best it can. Openings of this size are going to slow up the work.

Now, this is a 10-inch opening (indicating) with an area of 78.54 square inches and a circumference of 31.416 inches—over three times as large as this opening. You can get in there to your elbows and do your work.

Mr. Klocker. Mr. Chairman, I would like to object to the size of that opening. You can change the language a little bit and require that that particular 6-inch opening be confined to compartments of a certain size, for instance, 100 gallons. For anything greater a 10-inch opening could be retained. You can't readily adjust the indicator in the smaller opening.

As to this last paragraph: Does that mean you can put another indicator in the middle of a tank? If so, that is something absolutely out of line. If you put that down into the compartment, how will anyone be able to tell whether the liquid comes up to the indicator? I don't believe you can set that to within 15 gallons; it is entirely wrong and should be stricken out of there.

Mr. McBride. You will have to bear in mind in that relation that the sensitiveness must be retained so that you may secure an accurate setting.

Mr. Klocker. I am sorry, John, but here you have a different recommendation. The only way you can accurately seal the indicator is in the dome—in a small confined area. If you want this to knock off a sufficient number of pounds to reduce overweight, you would have to drop it down into the main part of the tank, and it would be an impossibility to accurately seal it.

Mr. Bussey. I move to table the amendment.

(The motion was seconded.)

The Chairman. The question is on tabling the amendment. This is not debatable.

Mr. Kanzer. As a point of order, there are two motions before the house.

Mr. Ragland. Mr. Chairman, I withdraw my motion.

Mr. ENGELHARD. Mr. Chairman, I think the time is ripe to realize that there should be two indicators when necessary. Obviously, in carrying gasoline, you can fill the tank to the upper indicator. But, if you want to reduce the capacity in order to carry a load of a heavier commodity on these return trips, a lower indicator may be required. These things have to be recognized. I think it is also obviously necessary that a 5⅝-inch opening should be recognized when we have so many of them actually in use.

Another thing. The small handhole opening is in a manhole cover. It has come to our attention on several occasions that with very little effort the manhole cover plate can be removed from one compartment and put on another compartment. I notice in this proposed amendment that a removable part shall be sealed in place if the indicator is attached thereto. If the manhole cover is sealed in place and in order to get inside the tank the manhole plate is removed, you would have to get the weights and measures official to come and reseal it. I think that a logical requirement would be one which the largest truck manufacturers in the country have accepted, namely, that the manhole cover plate be numbered to correspond with the compartment so that it can be shown that it has been changed, if it is changed.

The CHAIRMAN. Since Mr. Ragland has withdrawn his motion, the motion before the house is to table the amendment.

The Chair rules no further debate is in order.

(The question was taken, and the amendment was laid upon the table.)

Mr. BAUCOM. I move we amend Specification No. 5, to the effect that the minimum diameter shall not apply to tank trucks or compartments, the dimensions of which are such as to make it impossible to apply a 10-inch fill opening, in which event a smaller opening would be permitted, as in the case of a 100-gallon tank, perhaps 8 inches wide.

Mr. FULLER. Mr. Chairman, some action along those lines is certainly necessary, because we have a great number of tank trucks in operation today with small compartments having fill openings of the minimum specified in the amendment which are rendering satisfactory service. Can you say to a man that a regulation has been adopted here to the effect that he cannot use that size, when he can show it is already being used, and is sealed, and is giving correct measure? I think we should be reasonable in these regulations and take into account what the industry is using, when the result is that correct measure is being delivered.

In regard to that part of the amendment proposed allowing two indicators, we have a good many cases where transport trucks are going several hundred miles. They may be hauling gasoline in one direction, and coming back they may haul a pay load of commodity having a greater specific gravity. Are you going to say to that fellow, "You cannot do it, you have to come back empty?" Or can we permit him to have an indicator for that, provided it is clearly marked that the capacity to the upper indicator is so many gallons, and the capacity to the lower indicator is so many gallons?

I believe we made the language flexible enough. In the first place, in regard to the dome opening, we required that you must be able to see whether the compartment was completely empty, and in the other case it was required to be such that a seal could be applied unless the indicator was spot welded in place in which case the seal is not needed.

The CHAIRMAN. The Chair will have to rule that without a motion,

further discussion of this particular item is out of order, because you have moved to place this amendment on the table. If the Conference desires to go further with this discussion the Chair suggests it would be desirable to take this motion from the table and either go on with it, or, perhaps, to refer it to the Committee along with the suggestions made.

Mr. PISCIOTTA. I move that the proposed amendment be approved with the following amendment: After the words "shall in no case be less than 5⅝ inches" add the words "for a tank capacity of 150 gallons or less, and for tanks of a capacity above 150 gallons, it be 10 inches"; also the appropriate area for the 10-inch diameter should be inserted.

If we make changes in the amendment which was tabled, I think it would be proper for us to pass upon the material in this new form at this time. This passing of the matter from one Conference to another just keeps the industry up in the air. It is perfectly all right with the tank trucks already manufactured and now in use. But we know that the time will come when those used today will have to be replaced, and we should without further delay definitely decide for their guidance as to what we want them to manufacture in the future.

Mr. BAUCOM. I am willing to add that material to the motion which I made to amend the specification from the floor, instead of from the Committee. Mr. Pisciotta has limited the size of compartments which may employ the 5⅝-inch diameter opening in a manner which is acceptable.

Mr. KANZER. Mr. Chairman, I don't think this answers the problem. You recall last year we debated the specification, and one or two gentlemen said it was impossible to seal the indicator within a 5⅝-inch opening. I don't see how this proposal is going to obviate that difficulty, whether the compartment is of 150-gallon or any other capacity. Also, if you are going to specify dimensions, let the wording be such that we can understand it. The specification mentions 5⅝ inches, 24 square inches, and 0.04 of an inch. It is impossible accurately to determine whether these requirements are met, and, in putting forth any suggested changes impossible to enforce, you are just wasting time. We know what we can and cannot do.

Furthermore, while Mr. Pisciotta's suggestion is correct in a way I don't know that we have enough figures to say it should be 5⅝ inches on a 150-gallon compartment and then jump to 10 inches for anything above 150 gallons. I don't see why it is necessary to have 10 inches for 200-gallon or 175-gallon compartments but not for a 150-gallon compartment. I think we are arbitrary in our action, and I object to anything arbitrary in any specification.

It is simple enough to provide for those tanks which are in existence today. We can overcome that difficulty. But let us set the pace correctly for the future tanks to be constructed, so that they should be so constructed that a weights and measures official can readily determine whether the specifications are being complied with. Let us keep in a consistent mood and know what we can do and not just put down specifications as such.

Mr. CROCKETT. Mr. Chairman, isn't this discussion all out of order, when the motion has been tabled?

The CHAIRMAN. The gentlemen have taken the point that they are now proposing a new amendment from the floor. The one tabled was the one proposed by the Committee.

Mr. CROCKETT. In other words, they are going to use part of the information tabled and add something to it and bring it back to the Conference?

The CHAIRMAN. Yes, sir, that is the point, and the Chair has been trying to determine what that motion is.

Mr. MCBRIDE. The amendment is that the fill opening in no case be less than 5⅝ inches, on compartments of 150 gallons or less, and that on compartments of more than 150 gallons, the minimum fill opening shall be 10 inches, with the equivalent area also specified.

Mr. CROCKETT. What difference does it make, if you cannot get your hand in, whether it is 150 gallons or more?

Mr. MCBRIDE. The only answer to that is that there are in existence a number of 6-inch domes which we have been accustomed to seal. You have done it before, and now, in the case of new vehicle tanks, you will be required to do it in a very limited number of cases.

Mr. SHANKEL. I move we refer this matter to the Committee for further study, and that they report back to the Conference.

The CHAIRMAN. There is a motion already before the house.

Mr. SHANKEL. I move that as a substitute for the other motion.

(The substitute motion was seconded.)

Mr. PISCIOTTA. Let us remember this, that we have discussed it in 1937 and in 1938; we are discussing it now in 1939, and we may discuss it for 10 years to come. The manufacturers of vehicle tanks will not know what we want. As I understand these recommendations they are not retroactive, and we are not compelling the abandonment of vehicles in use today. What we are trying to do is to set down a policy for the future. When the manufacturer builds a new vehicle tank, it is just as easy for him to put in a 10-inch opening as a 5⅝-inch opening.

The CHAIRMAN. Gentlemen, we have taken three-quarters of an hour on this matter. The Chair does not want to limit the discussion, but we have a lot to attend to.

Mr. FULLER. Just one more point. Perhaps a happy compromise would be an 8-inch diameter, rather than the 10-inch size, which is excessive in the case of the smaller compartments.

Mr. BUSSEY. Mr. President, I certainly do not approve of the Committee amendment or the amendment as presented by my friend, Mr. Pisciotta. I do not think the Conference should hurriedly adopt any amendment here that we are going to be sorry for in the future. Therefore, I move to table Mr. Pisciotta's motion.

(The motion to table was seconded, the question was taken, and the motion was agreed to. Thereupon a motion that the specification be referred back to the Committee for review and that the Committee report back to the Conference on Friday morning was adopted.)

The CHAIRMAN. Gentlemen, Mr. McBride will proceed with the report of the Committee.

Mr. MCBRIDE (reading):

Specification No. 16 under this heading reads, in part, as follows:

Adequate provision shall be made for preventing the passage of air through the meter.

Amend this specification to make this sentence read as follows:

Adequate provision shall be made for preventing the passage of air or vapor through the meter.

(The amendment as proposed by the Committee was duly adopted.)

Mr. McBride (reading):

This specification also reads, in part, as follows:

In a pump-discharge unit, a mechanical air eliminator or other means shall be provided adjacent to the meter inlet.

Further amend this specification to make this sentence read as follows:

In a pump-discharge unit, a mechanical air eliminator or other means shall be provided in such a position that it will effectively prevent the passage of air or vapor through the meter.

That is similar to the language adopted in No. 5 previously.

(The amendment as proposed by the Committee was duly adopted.)

Mr. McBride (reading):

SECTION ON SCALES

Paragraph A–2q, under the heading "Scales—A. General Definitions" reads as follows:

A–2q. New Scales.—Scales which are about to be put into use for the first time or which have recently been put into use and are being tested for the first time by the weights and measures official. Scales which have been reconditioned or overhauled or which have been condemned for repairs by a weights and measures official and subsequently adjusted or repaired shall, upon the first test thereafter, be construed to be "new" scales for the purpose of the application of tolerances.

Amend this paragraph by adding at the end thereof the following words:

and SR requirements.

The proposed recommendation is designed to require that reconditioned scales be subject to the SR requirements for new scales. [Reading:]

Under the heading "Scales—A. General Definitions," paragraph A–2b(4) contains the following table:

Class of scale	Clear interval
	Inches
Small-capacity scales	0. 04
Large-capacity scales other than vehicle scales	. 12
Vehicle scales	. 25

Amend this table to read as follows:

Class of scale	Clear interval
	Inches
Small-capacity scales	0. 04
Large-capacity scales, other than (1) vehicle scales and (2) livestock scales having a capacity of 6,000 pounds or more	. 12
Vehicle scales, and livestock scales having a capacity of 6,000 pounds or more	. 25

That table specifies the amount of movement of the indicator of a balance-indicating device which shall be used in determining the SR of the scale. Three classes of scales are set up. The proposed recommendation is that livestock scales having a capacity of 6,000 pounds or more be taken out of the class of general large-capacity scales and that these livestock scales be made subject to the same requirement

as vehicle scales. The Committee now proposes an additional amendment—and this does not appear on the reports in your hands—to include coal mine and tipple scales in the vehicle-scale class, also. [Reading:]

Amend "Scales—A. General Definitions" by adding a new paragraph to be known as paragraph A–2b(5) to read as follows:

A–2b(5). Two classes of SR's are established:

(a) Acceptance or adjustment SR's: These are manufacturers' SR's or the SR's applicable to new scales as defined in paragraph A–2q.

(b) Maintenance SR's: These are users' SR's, or the SR's applicable to scales in use.

Amend "Scales—A. General Definitions" by adding a new paragraph A–2r to read as follows:

A–2r. Tolerance.—A tolerance is a value defining the amount of the maximum allowable error or departure from true value or performance. Two classes of tolerances are established:

(a) Acceptance or adjustment tolerances: These are manufacturers' tolerances or the tolerances applicable to new scales as defined in paragraph A–2q.

(b) Maintenance tolerances: These are users' tolerances, or the tolerances applicable to scales in use.

This language merely sets up two similar classes of SR's and tolerances already recognized in the code as manufacturers' and users' SR's and tolerances and further designates these by the familiar terms of "acceptance and adjustment" and "maintenance" requirements, respectively. It also defines the term "tolerance," which was not formerly defined in the code itself but which was defined in the introduction of Handbook H22. [Reading:]

Under the heading "Scales—I.—Sensibility Reciprocal (SR) Requirements," paragraph I–1 reads as follows:

I–1. For Large-Capacity Scales.—The maximum SR allowable on a large-capacity scale, at the capacity of the scale or at any lesser load, shall be the value of two of the minimum weighbeam graduations, except that the maximum SR allowable on a vehicle scale shall in no case be less than 10 pounds: Provided, however, That the manufacturers' maximum allowable SR, or the maximum SR allowable on a new large-capacity scale, whether or not it is a vehicle scale, shall be the value of one of the minimum beam graduations.

Amend this material to read as follows:

I–1. For Large-Capacity Scales.

I–1a. Large-Capacity Scales, Other Than Railway Track Scales.—The maximum SR allowable on a large-capacity scale other than a railway track scale, at the capacity of the scale or at any lesser load, shall be the value of two of the minimum weighbeam graduations, except that the maximum SR allowable on a vehicle scale shall in no case be less than 10 pounds: Provided, however, That the manufacturers' maximum allowable SR, or the maximum SR allowable on a new large-capacity scale other than a railway track scale, whether or not it is a vehicle scale, shall be the value of one of the minimum beam graduations.

I–1b. Railway Track Scales.—The maximum SR allowable on a railway track scale, except one in grain-weighing service, at the capacity of the scale or at any lesser load, shall be 100 pounds, and for a railway track scale in grain-weighing service, 50 pounds: Provided, however, That the manufacturers' maximum allowable SR, or the maximum SR allowable on a new or newly reconditioned railway track scale, shall be 50 pounds.

The proposed language takes railway track scales out of the general classification of large-capacity scales for the purpose of the establishment of SR requirements and then sets up the SR values which have been recognized for many years by the National Bureau of Standards and the AAR. [Reading:]

J. Tolerances.

J–1. For Large-Capacity Scales.

J–1a. General.

The present tolerances provide that all dormant, built-in, and self-contained scales installed outdoors shall be subject to class B tolerances in use.

Amend the tolerances by making such changes as are necessary to require that all of those types of scales, wherever installed, except coal mine and tipple scales, and scales having a capacity of 6,000 pounds or more and used exclusively in the weighing of livestock, shall be subject to class A tolerances. This will result in cutting in half the allowable tolerances on all scales of these types installed outdoors except the coal mine and tipple scales, and the livestock scales mentioned; in the case of the latter classes of scales the present class B tolerances will apply.

J–1b. Application of Large-Capacity Scale Tolerances to Railway Track Scales.

Strike out this entire section and insert in lieu thereof the following:

J–1b. For Railway Track Scales.

J–1b (1). The tolerances for railway track scales not equipped with automatic indicating or recording devices, and for scales normally equipped with these devices but while such devices are detached, are as follows:

(a) The maintenance tolerance (applicable to scales in use) for all scales except those in grain-weighing service, is ±0.20 percent of the test load being utilized, applied as follows:

For a scale of more than two sections, to the maximum indicated percentage error of weighing as defined below, but with the added requirement that no individual sectional error shall exceed 0.30 percent of the test load being utilized.

For a scale of more than two sections to the maximum percentage error developed when two or more test loads are applied to the scale at the same time at normal positions not closer together than the distance between adjacent sections.

For a two-section scale to the maximum percentage error developed for any position of the test load or loads.

(b) The maintenance tolerance (applicable to scales in use), for scales in grain-weighing service, is ±0.10 percent of the test load being utilized, applied as follows:

For a scale of more than two sections to the maximum indicated percentage error of weighing as defined below.

For a scale of more than two sections, to the maximum percentage error developed when two or more test loads are applied to the scale at the same time and at normal positions which are farther apart than the distance between adjacent sections.

For a two-section scale, to the maximum percentage error developed for any position of the test load or loads.

Note.—A scale in grain-weighing service shall be corrected whenever a test discloses an error in excess of 0.10 percent for any position of a test load. (This requirement conforms to the recommendations of the Interstate Commerce Commission—Docket 9009; 56 ICC 347.)

(c) The acceptance and adjustment tolerance (applicable to new or newly reconditioned scales) for all scales is ±0.05 percent for the test load being utilized, applied to the error developed for any position of the test load.

J–1b (2). The tolerances for all railway track scales in which are embodied or to which are attached automatic indicating or recording devices, for the respective types of scales and conditions of test, are the same as those for scales independent of such devices, except as follows:

(a) If the weight is indicated on a reading face, or by means of a printed impression showing the position of an indicating line with reference to a series of graduations, the maintenance tolerance shall not be less than the value of the minimum graduation on the reading face or printed impression, or of 1/500 of the capacity of the automatic device, whichever is a smaller value, and the acceptance and adjustment tolerance shall not be less than one-half of the minimum specified for the maintenance tolerance.

(b) If the weight indication is a printed record comprising figures only, there shall be added to the tolerance which would otherwise be appropriate an amount equal to 50 percent of the value of the increment between indications that can be printed by the device, or 50 pounds, whichever value is the smaller.

Notes:—

Test Loads.—The test loads contemplated to be used consist either of standard test weights carried on a four-wheel truck of known weight, or a railway track scale test-weight car or cars, either truck or car to have a wheelbase not exceeding 7 feet. The test load should have a weight of not less than 30,000 pounds.

Test-Load Positions.—A test run comprises normal positions of the test load assumed when each pair of wheels of the truck or of the test car is successively positioned over each section of the scale (except at each end section where only

one truck position is possible) except that in the case of a two-section scale an additional position is utilized with the center of the truck midway between the sections.

Maximum Indicated Percentage Error of Weighing.—The "maximum indicated percentage error of weighing" is computed for scales of more than two sections and is the largest mean value which can be derived from two errors developed during a single test run for positions (1) not closer together than the distance between adjacent sections on all scales except those in grain-weighing service, or (2) farther apart than the distance between adjacent sections on all scales in grain-weighing service.

Necessary changes in wording in paragraph "J–1a—General" shall be made to exclude railway track scales from the provisions of that section.

The tolerances proposed for railway track scales are, in general, those which have been applied by the National Bureau of Standards for a number of years. One or two changes are being incorporated setting up requirements which the Bureau proposes to apply on and after July 1, 1939. One of these changes is the material reading,

but with the added requirement that no individual sectional error shall exceed 0.30 percent of the test load being utilized.

The other change involves the adoption of tolerances on automatic indicating or recording devices. This is the material in paragraphs J–1b (2), (a) and (b). [Reading:]

Paragraph J–2—Proviso 1—reads as follows:

1. On a beam scale the tolerance shall in no case be less than one-half of the actual SR of the scale at the load in question.

Amend this material to read as follows:

1. On a scale other than an automatic indicating scale, when the scale is equipped with a weighbeam, the tolerance shall in no case be less than one-half of one of the minimum graduations on the weighbeam; when the scale is not equipped with a weighbeam the tolerance shall in no case be less than one-half of the actual SR of the scale at the load in question.

Mr. Kanzer. Mr. Chairman, I desire to go on record as opposed to all these recommendations, in principle. The problem of the use of new and old scales, the use of such words as "sensibility reciprocal," and so forth, are problems I cannot go into at this time. I will take occasion as we go along to make protests against all these difficult terms, as being impossible of being understood by anybody. The merchant will not know what it is all about.

Mr. Baucom. My definition of tolerance is the difference between perfection and prosecution, and it is the range within which an inspector may use his own discretion. Tolerances of at least 10 pounds are fixed for some vehicle scales—it to be implied that a coal dealer can short-weight 10 pounds, and you cannot do anything about it. I do not think that is right; we should not hamper our activities. It is up to us to work toward perfection as nearly as possible, and not to be limited in our prosecutions. I don't think we should accept these maximum or minimum tolerances; of course, all of you have the right in your own jurisdiction. In North Carolina we have already definitely gone on record as not accepting these exceptions. We are verging mighty closely to class legislation in this particular set-up, and whenever we do that, we are going to get in trouble.

I have the highest respect for our Committee. I know they have worked hard on this, but I think the major premise is wrong, and, as you know, if the major premise is wrong, any deductions or conclusions from that will have to be wrong. And I don't think you can remedy the situation by "clarification." The more you try to clarify this, the worse it will be, and we have practically to go back and

adopt the old handbook, which is clearcut and concise and clearly understood.

Mr. LEVITT. I don't think the fellows have had an opportunity to read these over; I know I haven't. And I don't see why we should use snap judgment here. I move that the action on this matter be laid aside, until one of the later sessions, so as to give the members an opportunity to make up their minds as to what they want to do about it.

(The motion was seconded.)

Mr. HOLBROOK. Mr. Chairman, I observe that Mr. Levitt thinks these were distributed only this morning. The fact is that these were available yesterday, and that fact was announced. Certainly, many of the delegates had them in their hands yesterday afternoon.

Mr. KANZER. I didn't get mine until today, because I wasn't here yesterday.

Mr. DAVIS. Mr. Chairman, I move we adjourn.

The CHAIRMAN. Will you hold that motion for a moment until we finish this report of the Committee?

Mr. DAVIS. Yes, sir.

Mr. MCBRIDE (reading):

Regulation K–1b reads as follows:

K–1b. MINIMUM ON VEHICLE SCALES.—A vehicle scale shall not be used for weighing loads of less than 1,000 pounds.

Amend this regulation to read as follows:

K–1b. MINIMUM ON VEHICLE OR LIVESTOCK SCALES.—A vehicle scale or a scale having a capacity of 6,000 pounds or more and used exclusively in the weighing of livestock shall not be used for weighing loads of less than 1,000 pounds.

Add a regulation to read as follows:

K–6c. LIVESTOCK SCALES.—The value of the minimum weight graduations of a scale having a capacity of 6,000 pounds or more and used exclusively in the weighing of livestock shall not exceed 5 pounds.

The Supplement to the report of the Committee reads as follows. [Reading:]

Amend "Scales—A. General Definitions" by adding a new paragraph to be known as "A–2s. Types of Scales" to read as follows:

A–2s (1) LIVESTOCK SCALE.—A livestock scale is a scale having a capacity of 6,000 pounds or more and used primarily for the weighing of livestock on the hoof.

A–2s (2) COAL MINE OR TIPPLE SCALE.—A coal mine or tipple scale is a scale used primarily for weighing lots of coal mined by an individual miner and weighed for the purpose of determining the wages to be paid to the miner.

Subsequent to the issuance of the Committee report, Mr. Roeser suggested a clearer definition of a coal mine or tipple scale, as follows. [Reading:]

"A coal mine or tipple scale is a scale used primarily for weighing lots of coal for the purpose of determining the wages of miners."

More than one individual takes part in the production of each lot of coal weighed and Mr. Roeser's suggested language is therefore more accurate than the Committee's language. All the members of the Committee have not read Mr. Roeser's language, but in my opinion it is preferable. So, I will offer it that way unless there is some objection from any of my Committee members.

That concludes the specific recommendations for amendments to the codes.

The CHAIRMAN. Thank you. There is a motion to adjourn before us, but before I put that motion, the Secretary would like to make an announcement.

Mr. HOLBROOK. I may say that the report of the Committee on Standardization of Packages has been mimeographed and is available on my desk. That report is to be considered the first thing tomorrow morning.

The CHAIRMAN. Gentlemen, the further consideration of the report of the Committee on Specifications and Tolerances will be taken up tomorrow afternoon, if time permits; if not, the first thing Friday morning.

(At this point, at 1:05 p. m., the Conference took a recess until 2:00 p. m.)

FOURTH SESSION—AFTERNOON OF WEDNESDAY, JUNE 7, 1939

TOUR OF THE LABORATORIES OF THE NATIONAL BUREAU OF STANDARDS

(The afternoon session of the Conference consisted of a visit to the new vehicle scale just installed by the National Bureau of Standards and to various Bureau laboratories. Two different tours of the laboratories were available, either one of which could be selected. One devoted particular attention to the Division of Weights and Measures. The other was primarily intended for delegates who had become familiar with these laboratories, and was designed to demonstrate the character and scope of the general activities of the Bureau. In order to make the tours of maximum interest and helpfulness, the delegates and guests of the Conference were divided into small groups, each of which was in charge of a member of the Bureau staff.)

Secretary's Note.—On the evening of Wednesday, June 7, 1939, a get-together entertainment session was held in the Rose Room on the Washington Hotel Roof, for the delegates and visitors and their families. Two motion-picture films were shown: "The River," by courtesy of the United States Film Service; and "News in the Air," by courtesy of the Standard Oil Co. of New Jersey. Those in attendance were also delightfully entertained by the mystifying performance of Harry H. Baker.

Light refreshments were served and dancing was enjoyed.

FIFTH SESSION—MORNING OF THURSDAY, JUNE 8, 1939

(The Conference reassembled at 9:50 a. m., at the Washington Hotel; W. S. Bussey, Vice President of the Conference, in the chair.)

STANDARDIZATION OF PACKAGES

The Acting Chairman. During the past year there was appointed by the president of the Conference a special committee to study the question of standardization of packages. Mr. Pisciotta will now present the report of his Committee.

REPORT OF CONFERENCE COMMITTEE, PRESENTED BY ALEX PISCIOTTA, CHAIRMAN

At the Twenty-eighth National Conference on Weights and Measures last year following the delivery and discussion of a paper by Director Alex Pisciotta, of the Bureau of Weights and Measures, New York City, a motion was adopted that a committee be appointed to look into the matter of remedying the situation as to the standardization of packages and to determine which way may be best adopted to accomplish that purpose. Subsequent to this the Committee on Resolutions introduced a resolution which was adopted endorsing the principle of general standardization of packaged goods as follows:

Whereas we have knowledge of the benefit which would accrue from a standardization of all packaged goods; Therefore be it

Resolved, That this, the Twenty-eighth National Conference on Weights and Measures, does hereby record its sincere belief that a general standardization of packaged goods is greatly to be desired, and does direct its Executive Committee to consider ways and means of accomplishing this.

An almost identical resolution was also adopted at the Twenty-seventh Conference in 1937.

Dr. Briggs, president of the National Conference, appointed seven members of the Conference to serve as the National Conference Committee on Standardization of Packaged Goods.

The need for prompt, effective action is imperative and is increasing rapidly. George Warner's paper on the standardization of packages of canned goods delivered at the Twenty-seventh Conference in 1937 and Mr. Pisciotta's paper on the standardization of packages in general at the Twenty-eighth Conference in 1938, and the general discussion which followed these papers brought out the facts regarding this fast-growing new method of cheating the consumer—because that's what it really is.

For generations commodities have been dealt in by standard units of weight and measure, particularly the pound, quart, gallon, etc. Business methods have changed and with the growth of chain stores, self-service stores, and the packaging of commodities in general, the sale of commodities which are weighed by the retailer is fast disappearing. Sale by package is now the usual thing. Competition is very keen in this class of business and has resulted in unfair practices and in all sorts of odd-sized, misleading, and deceptive packages. The consumer is being misled and deceived and often cheated outright.

Honest, ethical dealers, packers, and distributors are forced, in order to meet competition, to follow the lead of their competitors and adopt practices which they know to be irregular and which, in many cases, lead to conditions which are not to the best interests of the majority of the producers themselves.

For example, coffee. This has always been bought by the pound; everybody asks for a pound of coffee, or perhaps a half pound. Through competition, in trying to meet or to beat the price of the other fellow, we find 7-ounce packages, 8-, 13-, 14-, and 15-ounce cans, and the standard 16-ounce, or 1-pound, cans. There is no justification for the packing of coffee in these odd sizes, nor is there any justification in the packing of tea in 3-, 3½-, or 7-ounce packages, which is also being done.

Large distributors and chain stores have identical-sized packages for all staple commodities put out by them, such as rice, barley, dried beans of all kinds, peas, etc. In a list of 10 such distributors we find that for 8 such commodities, 6 of the 10 distributors put up these commodities in full-pound weights. One distributor put up only one commodity in a full pound, and put up five in the odd weight of 14½ ounces. Some distributors have identical packages containing two different weights of the same commodity, for instance, pea beans in 14- and 16-ounce packages and barley in 13- and 16-ounce packages. There is no excuse or justified explanation for this. These distributors argue that they purchase millions of containers of a standard size and use the same package for different commodities. They claim that their standard box, for example, will hold only 15 ounces of green split peas, 14½ ounces of pea beans, a full pound of lentils, and so on. They argue that by using only the standard-sized box and purchasing them in very large quantities, there is a great saving which is passed on to the consumer.

This argument is absolutely false, as is proved by the fact that other distributors can and do pack all their commodities in full-pound boxes of identical size. Furthermore, some of them do pack 14 and 16 ounces of the same commodity in the same standard-sized boxes.

L. J. Salter, of the Salter Canning Co., in a communication to the Committee on Coinage, Weights, and Measures of the House of Representatives in support of bill H. R. 6964, the Sauthoff bill, lists 15 different cans of tomato juice between 7 ounces and 1 pound 15 ounces and 14 different cans for tomato soup between 7¾ ounces and 2 pounds 2 ounces. Taking them both together, there are 29 different quantities listed in a range of 27 ounces. In this same range there are only 15 cans listed. Some of them contain two different quantities, probably because tomato soup is heavier. It is interesting to note that in the entire list of 29 different quantities there are only two cans which contain an even pound and only one which contains three-quarters of a pound. These are all that might be termed standard.

Beer is being sold in New York City, and probably elsewhere, in containers of the following sizes: 6½-, 7-, 10-, 11½-, 12-, 26-, 29-, 30-, and 32-ounce, or 1 quart. Through pressure on the part of the New York City Bureau of Weights and Measures, the 29-ounce bottle has been voluntarily discontinued by the brewer, who is now using the full-quart size. The brewery now putting up beer in the 10- and 30-ounce bottles formerly used the usual 12-ounce and 1-quart sizes but changed to the smaller quantities to meet competition.

In Wisconsin they have a law which requires that the actual weight or volume of the contents of food in package form be conspicuously set forth in not less than 10-point type in any advertisement when the retail price is mentioned.

Lately the matter of fiber or paper milk bottles has become prominent. In New York and several other States the weights and measures authorities have classed these as milk bottles and limited them therefore to the standard sizes allowed for milk bottles. Other States handle this in other ways, but all seem to be agreed that odd-sized fresh milk containers be not allowed to come into use. A representative of the largest manufacturer of these paper containers informed a New York weights and measures official that his firm had already been approached to manufacture a 6-ounce size of these containers, but had refused. Evidently, therefore, unless definitely checked, this evil of odd-sized packages will spread into the fresh milk industry.

Many retailers do not know the quantity in many of the packages which they sell every day. In the city of New York within 1 week during the Jewish Passover, inspectors of the Bureau of Weights and Measures obtained 1,100 violations against storekeepers, by asking for a 5-pound package of matzohs and being handed a package which was marked 4 pound, 9 ounces. In almost every case the storekeeper was asked if it was a 5-pound package, then the price per pound; the price quoted was made on the basis of 5 pounds at so much per pound. The matzohs were called "Fives" and were so billed to the retailer. A reporter on a newspaper with one of the largest sales in New York and throughout the East was preparing an illustrated article on the different sizes of beer bottles sold in New York. The weights and measures authorities asked him to go to the first store he met with on his way downtown and ask for a quart bottle of a certain kind of beer and to make it clear to the storekeeper that he wanted a quart bottle. He did so and was handed a 29-ounce bottle which the storekeeper insisted was a quart. To make it more complicated, it was labeled 1 pint 13 ounces.

One of the members of the Committee on Coinage, Weights, and Measures during the discussion of the Sauthoff bill stated, "Then there is no deception so far as the label is concerned?" Later in the hearing he admitted that he never reads the contents on the label. To suggest that the millions of consumers should memorize the weights of different-sized packages to escape being fooled, places the burden of proof on the consumer and is thereby an imposition.

It is apparent that canners, packers, distributors, and others rely on the old policy of "caveat emptor," or "Let the buyer beware." In other words, the consumer purchases at his own risk and is bound to protect himself as best he can against fraud and deception. That this is no longer the case—if it ever were true—is shown by the following extract from an opinion of the Supreme Court of the United States in a decision on November 8, 1937:

> The fact that a false statement may be obviously false to those who are trained and experienced does not change its character nor take away the power to deceive others less experienced. There is no duty resting upon a citizen to suspect the honesty of those with whom he transacts business. Laws are made to protect the trusting as well as the suspicious. The best element of business has long since decided that honesty should govern competitive enterprises and that the rules of "caveat emptor" should not be relied upon to reward fraud and deception.

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Along these lines, and in conformity with this changing policy, the Supreme Court in a decision stated that few purchasers read long labels; many cannot read them at all. A Federal judge recently charged a jury as follows:

> The law requires a manufacturer to be honest in his statement of the contents of a package containing a food product and it requires him to be honest in stating the truth of the labels put on it. It is the purchasing public, the ultimate consumer, whom the provisions of the law are primarily intended to protect. The law is not made for the protection of experts, but for the people, that vast multitude which includes the ignorant, the unthinking, and the credulous who, in making purchases, do not stop to analyze but are governed by appearances and general impression. It makes no difference that dealers in the article are not deceived. It is the probable inexperience of the customer that you should consider.

It can be seen from the above rulings that there is an obligation resting upon the merchant to so represent the commodities he sells that the average person can safely rely on the representation as it is understood by the customer.

The complaint is frequently heard that there is too much Government control in business. Whether this is true or not in general, the fact remains that it is frequently, perhaps too often, necessary for some governmental agency to step in and remedy conditions when business has failed to do this for themselves. A means of correcting conditions for themselves is provided through the agency of the Division of Simplified Practice of the National Bureau of Standards. However, this is based entirely on voluntary cooperation and the United States Department of Commerce has no regulatory powers with respect to simplified practice. As a matter of fact, the failure of voluntary agreements was pointed out at the hearing on the Sauthoff bill. The can makers could settle the problem by coming to an agreement, but they will not and they comprise only five or six corporations. It is too much to expect that 3,000 canners will agree. A number of the very largest canners did not sign the voluntary agreement and were therefore not bound by it.

This Conference for the past 2 years endorsed for passage the Sauthoff bill in Congress, which was aimed at the standardization of canned fruits, vegetables, and milk. This bill provided for the standardization on the basis of the standard liquid measures, that is, gill, pint, quart, and gallon. However, the Somers bill, although it reduces the large number of different sizes and shapes of cans, gets away from the standardization on the basis of standard weight or measure.

In the Somers bill there are nine cylindrical cans included for fruits and vegetables and three for evaporated milk. There are two rectilinear containers included for fruits and vegetables. This Committee is not aware of the reason dictating the inclusion of the particular sizes. There must be good reason for this selection. However, a computation of the capacity in cubic inches indicates that none of them has an exact capacity in terms of liquid measure, the nearest being the largest-sized container specified for evaporated milk, which will contain 231.16 cubic inches, or a trifle more than a gallon. That the capacity by avoirdupois weight will vary with the commodity is obvious. The capacity by avoirdupois weight of distilled water at 68° Fahrenheit is given in the law to two decimal places.

The Committee, after a careful study, is definitely opposed to the standardization of containers except in terms of standard contents.

This is true of everything standardized or proposed to be standardized by Federal law so far—till baskets or boxes, climax baskets, hampers, round-stave baskets, market baskets, standard barrels, etc. Any size or shape container is permitted for dry fruits and vegetables provided the net weight or numerical count is marked thereon. Weights and measures officials should not be interested in the standardization or simplification of container sizes when it conflicts with their duty. There is much room for standardization and simplification in containers which can be done without creating the multiplicity of varied contents. For example, everything that is sold by liquid measure can be easily and readily standardized both by size and by shape. If there is any sincerity in this standardization and simplification, let them adopt the standard units and submultiples of the gallon as we recommend in this report.

It is obvious that standardization of the size of containers of commodities sold by net weight can only be had by sacrificing the standardization of the net weight. If they desire to standardize, let them agree to pack in standard quantities and then all agree to pack the same commodity in standard-sized containers. Then all catsup would be standard and all the bottles would be identical—all tomato juice, which should be sold by liquid measure, would be in standard cans or bottles all identical in shape or size. Why should the consumer have to worry about a "No. 2" can, or a "No. 3," or any other stock designation. All she knows or should know is what she was taught in school as standards of weight or measure. If this is true of fresh milk, packaged butter, paint, and a number of other commodities, why shouldn't it be true of all?

It may be true that standardization and simplification of metal containers might result in reduced costs which would be passed along to the consumer. In the hearings on the Sauthoff bill the canners argued otherwise. We have been informed by a representative of the canning industry that there are now 27 different-sized containers for tomato juice and soup. If they are now using 27 different sizes for these commodities in a range of 27 ounces, think of the saving if only a few sizes were allowed.

It seems certain that the passage of the Somers bill in its present form will operate to the disadvantage of standardization of packages by contents for other commodities than those included in the bill (fruit and vegetables and evaporated milk). How can you expect to legislate the standardization of vegetable soup or canned spaghetti by standard weight or measure if tomato juice or canned peas can be legally put up in odd measure or weight, as would be permitted by the present Somers bill?

On pages 125, 126, and 127 of the report of the hearing on the Sauthoff bill, the evaporated milk industry states the reasons for the change from a 16-ounce can to a tall can of 14.5 ounces. Among numerous reasons, most of which do not sound conclusive, you will find the desire to make it a 5- and 10-cent seller. Once having decided on that, the industry "developed" other factors. It is necessary in order to compare values to determine the weight or measure contained in the can. For example, a customer found she could get two No. 5 cans of corn for 23 cents or two No. 6 cans for 25 cents. It would take a long time for the average consumer to figure that

out, and she wouldn't know any more about it if she saw the can; they would look much alike although containing different quantities.

The Committee held an all-night session last Monday, June 5, and had the pleasure of the presence of Carlos Campbell, Director, Division of Statistics of the National Canners Association. The subject was fully discussed and we received some very helpful suggestions from Mr. Campbell.

From all the data that the Committee has been able to investigate it is obvious

(1) That containers can be made of practically any sizes and shapes.

(2) That the size of the container is not regulated by canning problems or simplified practice, but by competition and the "whims" of the packer.

(3) Container sizes are frequently made to sell at an arbitrary price, such as a nickel or a dime; however, a standard price has been hard to fix. Every store will sell at its own price depending on location, type of customers, and other factors.

(4) Too frequently it is considered more advisable to decrease the size of the package in order to maintain the old price as the cost of the commodity fluctuates.

CONCLUSIONS

(1) There is absolute necessity for the standardization of the quantities of all commodities now sold in packages or containers, whether of food or otherwise.

(2) Present practice leads to fraud, deception, and unfair competition.

(3) Due to the interstate nature of this problem it must be remedied by Federal law.

(4) Simplified practice is a voluntary activity; there is no means of enforcing it and it is only effective to the extent that it is accepted voluntarily by a sufficiently large number of those affected.

(5) The Somers bill should be amended to provide for standardization by liquid measure for commodities sold by liquid measure, all containers of the same quantity to be of identical dimensions.

(6) For commodities in metal containers included in the Somers bill which are sold in terms of weight, the base dimensions of the container should be standardized leaving the height to be regulated for each commodity, these commodities to be put up in standardized quantities of avoirdupois weight.

RECOMMENDATIONS

The Committee recommends that Federal legislation be initiated standardizing the quantities of all commodities sold in packages or containers of any kind and that the Somers bill be amended so as not to conflict with such recommended legislation; that the standard be restricted to avoirdupois weight in the following capacities:

(1) 1, 2, 3, and 4 ounces, both fluid and avoirdupois weight.

(2) 6 fluid ounces for fruit juices only, where contents of container is sold to be consumed on the premises. (The reason for this is the requirement of the industry for hotel and restaurant use; a 6-ounce glass of fruit juice is usually served.)

(3) 8, 12, 16, 24, and 32 ounces avoirdupois weight, and multiples of the pound thereafter.

(4) 8, 12, 16, 24, and 32 fluid ounces and multiples of the pint to the ½ gallon; ½ gallon and gallon; and multiples of 1 gallon thereafter.

(5) Containers of different standards to be so constructed that the different sizes are easily discernible, this to be accomplished by fixing the diameter or the base measurements of the container and letting the industry change the height of the respective containers to fit the particular commodity.

(6) The height of the container to be no more than is required for the particular commodity at the time of packing, bottling, or canning, so as to allow for cooling or natural shrinkage.

(7) The net weight or net measure to be in the above units not at the time of packing, bottling, or canning, but at the time of sale to the consumer.

Respectfully submitted,

(Signed) Alex Pisciotta, *chairman*,
James O'Keefe,
C. D. Baucom,
C. E. Tucker,
C. L. Klocker,
R. L. Fullen,
George Warner,
Committee on Standardization of Packaged Goods.

Mr. Pisciotta. May I suggest that we dispense with any discussion of this report until we hear what the members of the industry have to say about their side of the story? After we have had an opportunity to hear them, we will all have an opportunity to discuss this measure and take any position we desire to take on the report. Discussion now, without hearing any comments pro or con would be practically a waste of time.

(A motion was made and seconded that this suggestion be followed, the question was taken, and the motion was agreed to.)

PAPER PRESENTED BY DR. HAZEL KYRK, HOME ECONOMICS DEPARTMENT, UNIVERSITY OF CHICAGO, REPRESENTING THE AMERICAN HOME ECONOMICS ASSOCIATION

I do not need to give this group evidence of the great increase in the sale of packaged goods, and the increasing frequency of their sale in a multiplicity of odd-sized and odd-shaped packages. I do, however, want to assure you that the facts about this situation and the dangers inherent in it are increasingly being noted by consumers and being brought to their attention by an increasing number of agencies.

I would like to summarize briefly what, it seems to me, are the objections to this aspect of the market situation from the consumer-buyer's standpoint. In the first place, there is a very real danger of deception, or, if you prefer to call it so, of mistake as to quantity. This danger takes two or three different forms. There is in the first place the baldest kind of what most certainly should be called deception, equivalent to short-weighting, when the customer asks for a pound or half pound of a commodity and is handed a package containing less than this amount. But there is also the deception or mistake that occurs when the buyer assumes from shape and appearance that a package contains more than it does, or as much as another, when in fact it does not. Allied to this is the error that is occasionally

made of assuming from the unchanged size and appearance of a package that it contains as much as it formerly did.

I have in my possession a clipping from a trade paper in which a firm selling vanilla announces, "The B— vanilla bottle is now an honest bottle." Up to that time it presumably had been a dishonest bottle, with paneled sides and with length excessive for its width—a bottle intended to deceive. I hope this confession was good for their sales as well as for their souls. Now it is an honest bottle (I have seen it), and one that will stand without tipping.

But deception is not the only ground for objection to the present miscellany of containers in which goods are packed. Another is the obstruction it offers to the making of those price comparisons that are essential, not only for individual economy in the narrow sense, but for the proper functioning of our individualistic economy in the broader sense. If the buyer is to get the most for her money, she must make price comparisons and select the article of given quality at the lowest price at which it is offered. I will say nothing of her ability to determine quality; that is another problem. Quantity, however, she must know in order that she may make price comparisons in a standard unit of measurement, per ounce, pound, pint; whatever is appropriate. But to what extent will this happen, can this happen, in the case of those articles offered in a multiplicity of odd-sized containers? She would be obliged to come to the market with pencil and paper and spend some time in calculation after getting the price quotations. Mental arithmetic would not suffice. Note even the difficulty that often confronts her in comparing the actual price per standard unit of the "small," "medium" and "large" packages of one concern; the "small" may contain 3½ ounces, the "medium" 8, the "large" 14. On what basis, one wonders, are these sizes arrived at. There are instances when they result in marked inconvenience and waste in use, as in the case of evaporated-milk cans. The small size does not hold quite a cup and the large not quite two cups, so that in any use as an ingredient with the measurement other than in cans, there is always not quite enough or too much.

Note also that no market is a truly competitive market where buyers cannot or do not make price comparisons—between dealers, between various brands, and between the branded and the unbranded, if such there be. Among the specifications for a "free-enterprise" society that really has the economic advantages it is supposed to have, is informed buyers, zealously seeking the lowest price for a given quality and best quality at a given price. The market that withholds information, gives misinformation, attempts to deceive, makes price comparisons difficult, is not a market according to the ideal plan.

It has therefore long been my opinion that one of the next steps in the regulation of weights and measures is legislation designed to eliminate the slack-filled and the deceptively shaped and constructed package, to reduce the present multiplicity of sizes to the minimum made necessary by the different uses and different users of the product and, finally, to substitute for the odd sizes, insofar as the nature of the product permits, those sizes that are easily calculable multiples or fractional parts of the unit of measurement appropriate for each commodity.

There is one issue that it seems to me should be brought up in this connection and carefully thought through. That is, is plain and conspicuous marking of the net weight or measure of the contents adequate remedy for the dangers and difficulties complained of? If the packages are so marked, has the buyer just cause for complaint? May the canner and packer properly say that the root of the evil is consumer ignorance and carelessness, that if she will not take heed, (that is, compute and compare) let her suffer the consequences?

Plain and conspicuous marking, although essential, would not of course reduce the effort or the time-cost of making price comparisons. In any discussion involving the buyer in the retail market, it is also well to be realistic. This buyer is far different from the buyer for resale or manufacture. Buying by the consumer is but one of many activities and responsibilities. The consumer buys not one commodity or related group of commodities but a wide variety of diverse character, some only infrequently. The buying is in small quantities. The question is not only what could consumer-buyers do, but what are they likely to do, and what are the economic consequences of what they will do.

Moreover, if it is granted that the multiplicity of sizes and the odd sizes are an inconvenience, time consuming, mistake promoting, why may we not rid the market of them? We do not set traps for ourselves, or try to make life more difficult than it need be. One question that should be asked about every market practice is, does it make buying an easier process? Does it reduce or increase mistakes? What are we to say of a market situation in which the buyer must use time and energy in avoiding deception, in discovering the concealed price change? Rather, I would say, let us make the market as mistake-proof, deception-proof, even fool-proof, as possible. Some changes proposed to bring this about involve expense, expense that will and should be reflected in the price of the goods. But this proposed change presumably would not increase, and might even decrease, the money costs of putting the goods on the market.

We need the plain and conspicuous marking of the net weight, measure, or numerical count of the contents of all containers in the standard unit of measurement that is appropriate. In addition, we need standardized containers, the number, size or capacity, and character of which have been determined by three things:

1. The nature of the commodity and the process of packing, shipping, or storing it.
2. Market demand for packages of various sizes.
3. Ease in making price comparisons and the reduction of mistake or deception as to quantity.

The Acting Chairman. Thank you, Dr. Kyrk. The Conference is certainly obliged for your discussion.

Before we recess, I want to ask our Vice President from the Hoosier State to assume charge of the meeting this afternoon. Let us all make an effort to be back here in time to resume the sessions at 1:30.

(At this point, at 10:51 a. m., the Conference took a recess until 1:30 p. m.)

SIXTH SESSION—AFTERNOON OF THURSDAY, JUNE 8, 1939

(The Conference reassembled at 1:50 p. m., at the Washington Hotel; Rollin E. Meek, vice president of the Conference, in the Chair.)

STANDARDIZATION OF PACKAGES—Continued

PAPER PRESENTED BY HECTOR LAZO, EXECUTIVE VICE PRESIDENT, COOPERATIVE FOOD DISTRIBUTORS OF AMERICA

Mr. Chairman, ladies, and gentlemen: I approach this with some hesitancy, because I have never found it worth while to pretend to be an expert in things I know very little about, and I know very little about the technicalities of this subject.

I have a very definite picture in mind of the type of distributor that we represent, the type of distributor that is concerned with this problem, and the type of distributor who welcomes the activities of the National Conference in recent years and recent months towards reducing the multiplicity of containers of all kinds, and making, shall we say, a common-sense approach towards a reduction of all these things that are quite as confusing to my dealers as they are to the consumers.

We are aware of the fact that, traditionally, distributors are supposed to be some sort of poorly disguised enemies of the consumer, and hence if the consumer sponsors a program of more informative labeling, of greater standardization of containers, a reduction in the multiplicity of can sizes in canned goods, we, as distributors, should be against it. Of course, that is all poppycock.

Actually, distributors are, or should be, very definitely for any program which (1) reduces the number of cans and other containers to a minimum consistent with good business and common sense, (2) establishes practical informative labeling with a common-sense approach to the very real problem of standards of both weight and quality, and (3) affords the consumer full and accurate information as to the quality and quantity of the contents.

And why shouldn't we be for such a program? Would not such a program mean greater sales and more repeat sales for us?

Frankly, there is quite a group—and I hope it is growing—among distributors who think that, selfishly if for no other reason, the distributor's interests must be tied up directly with the wishes of the consumer. And by that we do not mean inventing phantom consumer desires but actually trying to take the consumer point of view and, wherever possible, complying with such desires.

Now, obviously, consumers may be acting under either fair and full information, in which case intelligent consumers can be generally trusted to act pretty sanely, or else they may be acting under partial or even false information, in which case their actions might be open to question, perhaps even opposition on our part. But if the consumer is not fully informed, whose fault is it?

Is there anything now preventing us, as distributors, from telling the consumer in simple terms, what, let us say, and how much, this can

of vegetables contains? A myriad of practical considerations immediately rise; to the extent that they are practical obstacles, and not merely selfish inventions of our own, the consumer ought to be willing to listen to reason. But we must be prepared to supply those reasons. The consumer may know definitely what he or she wants, and in the absence of better information to the contrary, may even believe that Government grade labeling for quality and a similar Government standard for quantity will supply the answer to her prayer. If, as most distributors believe, Government grade labeling is not the best solution, what is? And what are we doing to persuade Mrs. Consumer that it isn't?

Many good people shudder at the thought of Government grade labeling, and the trade as a whole is opposed to this. There are many and weighty arguments why the trade takes this point of view. Most of you gentlemen know these much better than I do. But what does Mrs. Consumer think about this? Does she understand our reasoning in the matter, as against the reasoning of those who advocate Government grade labeling and Government standardization by decree?

Let us be realistic in this for a moment and ask ourselves whether, under the new Food, Drug, and Cosmetic Act, the Government has power to set standards which can then, by various means, be forced upon the trade. I happen to be of that school of thought which believes the new law gives the Government just such powers. The Government can go ahead and, after investigation, propose certain standards. The Government proposes such standards and submits them to the trade; the trade thinks they are pretty good; finally, after consultation, accepts them. From then on, with the force of law, a standard can of tomatoes will be a can which contains merchandise which, on a minimum, is thus and so. We choose to call that grade "Standard", the Government says that it is "Grade C". This particular standard that has been set for the quality of the merchandise meeting such and such specifications has got to be called something; the Government says that is "Grade C."

What will Mrs. Consumer call it? This depends, it seems to me, upon the degree of educational pressure to which the consumer is exposed. And if that holds good for quality, it likewise holds good for quantity, for size of containers, for variety of containers.

We definitely favor a general cutting down in the multiplicity of cans, of can sizes, and of containers as a whole. The tall and the short, the half number and the full number, the odd-shaped bottle and the false-bottom bottle—devices which savor more or less of confusion, to say the least, in the minds of the packers and distributors, and may quite easily be used for something more sinister than mere confusion in the minds of consumers. The result is total inability of smaller merchants to stock varieties available, for obviously the small man with small capital cannot possibly have a so-called "full line" when the line consists of 40 different sizes of containers for one item; but he can have a full line if we come down to 4 or 6.

Those of us whose chief concern is the small individual store, must always bear in mind that the greater the obstacles to competitive equality between that individual merchant and his multiple-store competitor, the smaller the chances are for that small man to survive. A common-sense cutting down, therefore, of the myriad varieties, shapes, and sizes of containers, must of necessity reduce the ad-

vantage of the man with adequate capital, as against the little business man who has a hard time to scrape up enough money to meet his weekly bill. He simply does not have the money. It may be his fault, and then again it may not be. This is not the place for a discussion of that phase of it; but the stark fact remains that he hasn't the money. If he has to attempt to stock a full line of any one commodity, which in turn means 40 or more sizes and containers, that little man is licked before he starts. The consumer may know very little about the difference between a No. 2 or 2½ can, and thousands of consumers perhaps don't care, but the small merchant must care, for it means he either has to double his stock of merchandise "to be competitive," or else be at the mercy of the man who can offer the No. 2 can at a consistently lower price. Actually, if we should continue the present number of containers, which total over 150 different sizes, it is conceivable that through the careful manipulation of this one thing alone, more and more trade can be directed into certain channels, to the grave danger of the small man on the corner.

To us, therefore, the simplification of the variety of sizes, containers, and packages becomes a serious consideration. We believe that the whole question is tied up with the problem of proper consumer education, which involves descriptive labeling as well as intelligent packing, packaging, and standardization of size and type.

It involves, from our point of view, perhaps a National educational campaign the like of which the industry has never undertaken, the like of which the American consumer might now not even want, but certainly needs. It means the putting aside of brands for the greater aim of fixing in the consumer's mind the convenience of, advantages of, and protection to her of certain standard sizes; the next step then will be certain quality standards; and the third will be the classification of brand within those standards, both of size and quality.

It would be a rash person indeed who would attempt to suggest even the outlines of such a program in a brief talk of this kind. Our only contribution, if it is such, today, must be limited to bringing out into the open and onto the top of the table the possibility of a joint trade and Government program for the education of the consumer.

The interests of both not only need not, but should not, be different. Both the Government and the trade should be interested in having the consumer fully and accurately informed—not in the way of propaganda, but in the way of education and information. We shall both benefit when the consumer knows intelligently how to buy her canned goods; knows and understands the problems faced by industry as producers, by business as distributors, and by the Government as an umpire, interested in seeing to it that a minimum set of protective rules are adhered to.

We see no reason why common sense and a genuine cooperative spirit should not be able to produce this; we are fearful lest the trade—and by this we mean the producing, processing, and distributing trade as a whole—should allow itself to be blinded by individual self-interest, and thus lay itself open to frontal attacks from both the Government and the consuming public. We shall definitely deserve such attacks, and the inevitable Government regulation which will follow, if we fail as intelligent businessmen to come together for a common purpose, and evolve a common aim toward which we can march together.

We accordingly endorse, as a splendid step forward, the efforts of the National Canners Association in cutting down the va ieties of types and sizes in the various products. We want to pledge to them our support in this effort and our cooperation toward a further standardization, if and when this is possible. In any joint effort undertaken for the purpose of adequately and accurately educating Mrs. American Consumer, you may count on us for our full share.

DISCUSSION OF ABOVE PAPER

Mr. Pisciotta. Mr. Chairman, may we be permitted to ask a few questions as we go along?

The Acting Chairman. It was my understanding there would be no discussion until after the speakers had completed.

Mr. Pisciotta. That was on the report of the Committee.

The Acting Chairman. I think that would be a good idea, in view of the fact that some of the people may leave.

Mr. Lazo. I shall be glad to answer questions, but not technical questions, because I am not a technical man.

Mr. Pisciotta. I would like to know where in the Food and Drugs Act is there a provision giving power to regulate and standardize by weight the contents in any containers.

Mr. Lazo. The consensus of opinion among the lawyers I talked to—not Government lawyers but outside lay lawyers—was that the power depended upon the degree of rigidity of interpretation of that clause which permits the Government to set standards. My conception of it is that the Food and Drugs Act gives the Government considerable latitude of power.

Mr. Pisciotta. Is there any possibility of getting the one who gave that information to enlighten us, because we have investigated and studied the Food and Drugs Act and think there is no possibility in there of regulation. I understand that before the Committee on Coinage, Weights, and Measures that very question was raised, and at that time no one was able to point to any provision to standardize containers.

Mr. Lazo. I shall be very happy to draw up and transmit to this Conference the opinions that have been given to me. I will send a consensus of them to the chairman, so that you may all have them.

Mr. Pisciotta. We would appreciate it. May I ask another question? Does your Association, representing the distributors, really know what the consumers want as to the particular sizes of containers?

Mr. Lazo. Nobody knows that.

Mr. Pisciotta. Have you made any attempt to find out?

Mr. Lazo. Yes; as much of an attempt as is possible to make under the circumstances. Quite frankly, you know and I know that there is not one out of a hundred consumers who knows what he wants, and I doubt if there is one out of fifty consumers who would be able to make distinctions between the present cans on our shelves.

Mr. Pisciotta. And it is necessary for someone to eliminate many of them?

Mr. Lazo. Yes; I agree with you, it is necessary to eliminate some of them, and it is necessary to educate the consumers as to what we have left, and why.

Mr. PISCIOTTA. I believe the simplified-practice project was inaugurated in 1931. What progress has been made to simplify the containers from that time until now?

Mr. LAZO. That I would not be able to tell you. I don't think the distributors have accomplished very much, and that is the theme of my song here—that we should do more and that we are willing to do more. We have perhaps been standing on two sides of a fence, whereas we should have taken the fence down and shaken hands.

Mr. PISCIOTTA. Do you think one distributor out of a hundred could upset the others? If he were a big distributor of large ways and means, a powerful distributor, then he might dictate to the other ninety-nine.

Mr. LAZO. No; I don't think there is any one distributor today who can dictate to the rest of the industry.

Mr. PISCIOTTA. He may refuse to go along with any of them—still go along with his own activities, regardless of what the others do, and there would be no force under the law to compel him to do otherwise.

Mr. LAZO. Is it your understanding, sir, that the only force in the world is the force of the law?

Mr. PISCIOTTA. Is there any other force?

Mr. LAZO. Yes; I think so. We have demonstrated in the food industry there is a tremendous cooperative moral force between us, the manufacturers and distributors alike.

Mr. PISCIOTTA. Has it accomplished anything in trying to satisfy this particular problem?

Mr. LAZO. Well, that has to be demonstrated. This is one problem. We are thinking of our own side of it. We are thinking primarily of the distributor or manufacturer, and this is one of many problems. This has not been tackled jointly, and it is my belief that we should tackle it. I am not in favor of doing it by Government decree. I think it can be done differently. It can be done by a cooperative approach to this thing, and I am not in favor of more law. Every law is simply a restriction upon the freedom of action or liberty of someone. That is a law. And to the extent it restricts that freedom, that law is effective. Now, I am not in favor of that. I am in favor of common-sense voluntary action wherever possible. We haven't tried cooperative action yet. This is a very healthy thing. We may not agree as to the method, but I think we can agree as to the ultimate end. But this is a very healthy thing, to discuss our problems together and take some action together. And if the trade fails to come to you and fails to act cooperatively and do at least its full share—although I think you will find the trade perfectly willing to do so—then it is time for Government regulation. I do not think this is the time for it. I have been here observing these things in Washington for years, and I still don't believe the law is the way to do it.

Mr. PISCIOTTA. I understand the simplified practice agreement was entered into about 5 or 6 years ago and hasn't been applied yet, because the largest distributors and manufacturers won't sign.

Mr. LAZO. Is that all the fault of the trade?

Mr. PISCIOTTA. Yes; they could get together and do it without someone forcing them to do it. They have had since 1931 to do it

and haven't accomplished it yet. Sooner or later somebody will have to force them to do it.

Mr. LAZO. And you think the only way is by further legislation?

Mr. PISCIOTTA. There is no other way.

Mr. LAZO. That is where we part. Here is Constitution Avenue, and here is Pennsylvania Avenue, and you come up one and I come up the other. I think we can do it voluntarily. However, I don't say we should have no regulation at all. I would be the last one to say that.

Mr. PISCIOTTA. The law is a regulative power.

Mr. LAZO. Yes; but there are laws and laws, and there is a certain amount of policy with the power, and to the degree we extend it, to that degree we reduce the voluntary action of the people as a whole. My plea is that we attack this as a common-sense problem first to have as much as we can of voluntary action. I don't think that you gentlemen, for example, have given us the benefit of all of your technical knowledge and experience as to how we might go about a voluntary action of that kind. If you have, then we have fallen down, and perhaps you should let us see if there isn't another chance. If there isn't another chance, I am here to tell you we are going to have Government regulation, and I know it and you know it, and I want to avoid it. And if we fall down and don't do it, we are going to get Government regulation and have asked for it.

Mr. PISCIOTTA. What cooperation have you seen from the industry?

Mr. LAZO. Well, I am not entirely in agreement that it is always industry that is at fault. And I am not one of those that says everything the Government does is wrong. Far from it. I think we must approach this thing from both points of view. You come part way and we come part way. Perhaps we haven't come far enough. We are hanging back on the side line, perhaps we are hanging back too far. All right, let us make a common-sense approach toward meeting half way. Let us do that, and then if we fail, all right, and we have then simply to ask the Government to come in and force us to do it.

Mr. PISCIOTTA. Have you read the recommendations of the committee?

Mr. LAZO. Yes, sir; I have read the recommendations of the Committee, and I am a bit fearful that the main thing there, so far as I have been able to interpret it in the few minutes, is more Government regulation. And I am just simply pleading with you to see if we cannot do it through cooperation first.

Mr. PISCIOTTA. In other words, you want one more chance?

Mr. LAZO. Well, let us say, let us give each other one more chance?

Mr. PISCIOTTA. All right.

Mr. KANZER. Mr. Chairman, may I ask just one question, please, of the speaker? Let us assume all manufacturers and distributors of tea, except one, want to have a 1-pound package of tea; that one wants a 15-ounce package of tea. What method could we pursue to pull him in line?

In the State of New York, the sale of ice cream was being made in the odd-sized containers. We passed legislation in cooperation with industry, because the different dealers would not all pull together. Would not you say that the only answer in such case is Government regulation?

Mr. Lazo. I am afraid I agree with you. If we cannot bring ourselves into line, then we are going to have Government regulation. I was rather hopeful there would be more people of the industry here today because it is to them I am talking. I have been preaching this for several years. I don't think we are going to solve it simply by slapping in an over-all law, Federal or State. I think there is much that can be done.

I had considerable to do with regulations under NRA in the food industry, and I am perfectly willing to be quoted for the record as saying to you that 99½ percent of the cooperation and of compliance there was voluntary. We do have those who don't do what they should do, including judges, and that is why we have laws and jails. I cannot say it should not be done by legislation if it cannot be done otherwise.

The Acting Chairman. I think Mr. Lazo has given us a very good expression of the viewpoint of the retail food distributors on this question. We certainly wish to thank you, Mr. Lazo, for coming here and giving us this expression of your viewpoint.

PAPER PRESENTED BY CARLOS CAMPBELL, DIRECTOR OF THE DIVISION OF STATISTICS, NATIONAL CANNERS ASSOCIATION

Mr. Chairman, ladies, and gentlemen: The need for standardizing containers for canned foods is well-recognized by the canning industry. It is, however, a relatively easy matter to recognize the need for a change, but quite another problem to prescribe a satisfactory method for making it. No reputable physician would attempt to prescribe a remedy without a diagnosis. We have recognized certain symptoms in this case, but as yet a thorough diagnosis involving the various ramifications of the problem has not been presented. (When I say it has not been presented, I am not referring to any discussions that have taken place here at this Conference. This paper was written before.) The first step in making a diagnosis is, of course, to obtain the facts regarding the history of the case.

The canning industry in the United States is approximately 100 years old. It has grown up in many parts of the United States, each section being developed more or less independently of all others. Foods are canned in all but two of the States. It is only natural that various types and sizes of containers would be developed in these various sections, partly because of the different types of products being canned and partly because there was no coordination in the development of the industry. In this respect, however, the history of the industry's container problem does not differ from the history of the development of baskets, boxes, hampers, barrels, etc. that were used to pack fresh fruits and vegetables.

There is, however, one fundamental difference between the tin can as a container for canned foods and the dry measure container for fruits and vegetables. This difference lies in the fact that a canned food when processed must be placed in a container that carries the food all the way from the canning factory to the consumer's kitchen. Baskets, barrels, boxes, crates, etc. are containers used primarily for the convenience of the distributing trade. The size of these dry measure containers is not determined by the individual consumer's demand. Baskets of apples, sacks of potatoes, crates and hampers of

fresh vegetables, are delivered to the retailer, who sells their contents to the consumer in broken lots of many sizes.

It isn't possible for the retailer to sell canned foods by cutting a No. 10 can and parceling out to his consumers so many ounces or pounds. Because of this characteristic it has been necessary for the canner to study the nature of the ultimate consumer demand and to try to predict the amount of food which the ultimate consumer would care to purchase under all the various conditions that affect the demand for food. The variation in the size of families, consumer purchasing power, prices, geographic differences in native food habits, differences in classes of consumers, and many other factors could be mentioned that tend to cause consumers to purchase foods in varying amounts.

Anyone who has had experience selling to the retail trade knows that consumers' tastes and the amounts of individual purchases vary widely. He also knows that these variations are frequently not predictable. Knowing these facts, the canner has attempted to satisfy the consumer by making available to her a wide variety of can sizes from which she can choose.

It isn't possible for any one canner, or hardly feasible for any group of canners, to obtain from all the consumers the size of containers in which they would like to purchase their canned foods. In actual practice this information has been obtained by what might be termed the trial and error method; that is, a canner starting out to pack a new product packs it in as wide a range of sizes as is economically practicable, but he continues to pack in only those sizes which the consumer purchases. Therefore, at any particular time the vast majority of the can sizes that are used in the industry are being used because those are the sizes which the canner has found the consumer buys.

One might expect that over a period of time canners would have determined the can sizes which consumers want, and that the industry would settle down to these sizes. This result could be expected only if conditions were static. Everyone knows conditions are changing from day to day. The sizes which a canner found were acceptable to his trade last year may not exactly suit the situation this year. For that matter, we have observed radical shifts in consumer purchases of various can sizes within a given marketing year. That occurred this year very definitely. Furthermore, new products are being developed and with each new product there is a separate problem of determining the can sizes that consumers desire.

Canned foods are not a homogeneous product. The industry cans over 200 products, each product having its own consumer appeal and each product having certain physical characteristics which affect the size and shape of container required for processing. This necessitates considering each product separately. Certainly no one would expect consumers to purchase tomato paste in only the size of cans used for tomato juice or canned tomatoes. The aggregate number of can sizes used by the canning industry should, therefore, not be considered without due regard to the number of products for which each of these can sizes is used.

The National Bureau of Standards, in cooperation with the National Canners Association, made a survey of the canning industry last year to determine the size of the pack of each product in each of the various

can sizes used. The cooperation which canners gave this study is worthy of comment. About 96 percent of the total pack of fruits and vegetables was reported in this survey.

The number of products covered depends entirely upon the definition of a product. The classification made in tabulating the data combined a number of products under one heading, when the physical characteristics of the products would permit their being packed in the same can sizes. In spite of this method of classification, the tabulation included 101 separate and distinct products. These products were canned in can sizes which in the aggregate totaled 155.

Products such as corn, peas, tomatoes, green and wax beans, which taken together represent close to half of the total pack of vegetables, were canned in a relatively small number of can sizes. These products, however, have been canned for many years, and canners have had an opportunity to determine fairly well the sizes that consumers want. On the other hand, tomato juice, a relatively new product, was reported in 44 different can sizes, which quite obviously represents a far greater number than is necessary. But this illustrates the extent to which canners cover the entire range of can sizes in their attempt to determine which sizes the consumer will buy. Even though tomato juice has been packed for a relatively short period of time, the industry has already discarded a number of sizes that were tried out in the beginning. In 1937, of the 44 sizes reported, each of 16 were being used by one canner only. Many of these cans did not appear in the 1938 pack.

If given time, can sizes for each of the products would tend to become standardized through the operation of the economic laws which govern the sale of a canned food to consumers. The objection, however, to this process of standardization appears to be that it takes too long. The remedy is to accelerate the standardization process, that is, speed up the natural processes that lead to standardization. It would be a grave mistake not to recognize the dynamic nature of consumer demand for canned foods and to freeze the size of containers on the basis of conditions at any one date.

The canning industry, appreciating the problems involved, has developed a program to bring about a more speedy standardization of containers. This program has two main objectives: (1) The elimination of sizes which because of closeness to other sizes might be confusing to consumers, and (2) sufficient elasticity to take care of changing consumer demand and improvements in canning operations.

The data on the 1937 pack have been studied very carefully for the last nine months by the Association's Committee on Simplification of Containers. The Committee, consisting of canners of long experience who realized the magnitude of the problem, analyzed it first from the standpoint of what had been done in other industries. Before any attempt was made toward selecting a list of can sizes, the Committee drafted a set of principles which would govern the selection of sizes.

The first principle adopted was that, because of the differing physical characteristics of the products, and because of the differing consumer demands for the various products, it was necessary to select a list of can sizes for each product. Any one who is familiar with the problems of canning and selling canned foods would, I am sure, agree that this principle is fundamental.

As a matter of fact, this principle is not new. Standardization of dry measure containers for fruits and vegetables was approached on a commodity basis, with successive laws enacted for different products. It is now proposed to consolidate the existing laws, but in this consolidation the principle is retained, and it is not proposed to set up a single list of dry containers of one specified type that must be used for products of different types.

The Association's Committee fully appreciated the fact that, if a list of sizes were selected for each of the principal products and these lists were then combined and canners permitted to use any of these sizes for any or all of their products, there would very probably be as much confusion as before standardization was attempted. For example, a 307×508 can was selected as one needed for packing corn on the cob, but its use for other products could very easily cause confusion among buyers. Accordingly, the Association's Committee recommended a separate list of can sizes for each of 58 different products. These recommended lists have been approved by the Board of Directors of the National Canners Association, and the Board at its meeting May 18 made formal request of the National Bureau of Standards to revise its simplified practice recommendation for the canning industry by adopting these lists of cans.

The 58 fruits and vegetables included in this program were so classified as to cover the principal fruits and vegetables packed in the industry. The total pack of these 58 products amounted to about 97 percent of the total pack of all fruits and vegetables in 1937. The remaining 3 percent of the pack was not included in this standardization program because of inadequate data. The inclusion of these other products is contemplated as soon as possible.

The 58 lists of can sizes recommended include 45 sizes in the aggregate. This represents a substantial reduction from the 155 sizes used in 1937. Each of 27 sizes was recommended for one product only, thus emphasizing the peculiar requirements of individual products. Eighteen sizes were recommended for more than one product. The output of products in 1937 for which these 18 sizes were recommended totaled about 90 percent of the total pack of fruits and vegetables. Thus, only 7 percent of the total pack will be permitted to use sizes not included in the list of 18 sizes.

For a number of products only three or four can sizes have been recommended. Canned tomatoes have only four sizes, peas and corn (not including corn on the cob) are allowed six sizes each. These three vegetables represent about 40 percent of the total pack of canned vegetables. For other products, however, a larger number of sizes was selected. Asparagus and tomato juice each have 10 sizes, this being the largest number recommended for any one product. Of the 10 sizes recommended for asparagus, 3 are permitted for no other product.

In the case of tomato juice, although 10 sizes have been recommended, it should be recalled that 44 sizes were included in the list from which these 10 were chosen. In the case of a juice product, there is apparently a greater demand for cans of varying sizes. But, as previously stated, tomato juice is a relatively new product, and it is practically impossible at this time to fix a list of sizes that will be satisfactory for all time to both canner and consumer. In other words, the program contemplates some modification in the list of sizes selected

for tomato juice and certain other products, keeping in mind, of course, the two principal objectives previously stated.

In the case of beans with pork or sauce, 25 sizes were reported as used in 1937. The recommended list includes 8 sizes only. These sizes range from the 8 Z Tall, 211 × 304, having a minimum volume fill of 7.47 fluid ounces (8 ounces avoirdupois) to the No. 10 can, 603 × 700, having a minimum fluid ounce fill of 94.59 ounces (6 pounds 12 ounces avoirdupois). The first seven of the eight cans listed for beans with pork or sauce are primarily for the retail trade, the No. 10 can being principally for wholesale or institution buying. Of the seven retail or shelf sizes, the minimum spread in net capacity is 3 ounces whereas the maximum is 4 ounces.

The criterion of what constitutes confusion in buying is not in all instances the spread between the capacities of any two cans. The shape of the can needs to be taken into account also. A fixed difference in capacities could not be used as a criterion, because a small difference in small cans might not be as confusing as a larger difference in large cans. Furthermore, any criterion that is adopted must be applied on a practical basis, that is, if the bulk of the sales of any given product has been in medium-sized cans, the Committee felt that it was desirable to make available to the consumer a relatively larger choice of cans in that group than in the smaller or larger cans. This practice tended to make the spread in capacity smaller for the more popular cans and wider for the less popular ones. This principle is considered sound, especially in view of the fact that canned foods are sold on a net content basis, it being required by law that the net content be prominently stated on the label.

To summarize the Committee's point of view and the actions it has taken, it may be said:

The can is a container, not a measure, the size of which is determined primarily by the consumer. It performs a dual function as an original container and a consumer package.

As an original container, the can must be adapted in size and shape to the product for which it is used.

As a consumer package the can size is subject to changes that constantly take place in consumer requirements and buying habits. For this reason it is impracticable to select for permanent use a list of sizes based on consumer preference as of any given time. The Committee, nevertheless, recognized that there should be a simplification of can sizes which would prevent confusion in buying, and at the same time permit modifications that would meet the changing requirements of consumers.

The lists recommended by the Committee are based upon consumer preference as measured by sales of the respective commodities; they eliminate sizes that might be confusing to buyers.

The Committee, on behalf of the industry, has labored in good faith to work out a program that is both practical for the canner and helpful to the consumer, by giving her a visual measure of the relative amounts of food in the cans, in addition to the statement of net contents which the food law requires to appear on the label.

(At the conclusion of his paper, Mr. Campbell exhibited a chart showing can sizes in common use and the can sizes remaining in the recommended list, and commented briefly on the reduction in the number of sizes.)

DISCUSSION OF ABOVE PAPER

Mr. Pisciotta. I believe you said at the beginning that as far as boxes were concerned, they were primarily for distribution by the wholesalers to the retailers. That is not true of grapes and strawberries, for instance, sold in boxes.

Mr. Campbell. The statement would not hold true for everything, but in general it is true. Also it is possible to break these boxes without destroying the value of the product. Sometimes the contents of grape boxes are broken up and sold by the pound.

Mr. Pisciotta. Does not the size of can available dictate the particular size the consumer orders? Has the consumer any choice in the matter?

Mr. Campbell. I would say if there were very many sizes being sold, the consumer would have a large choice.

Mr. Pisciotta. But if a retailer carries a limited number of sizes, then what?

Mr. Campbell. One of the complaints is that the grocer has to carry too many sizes—that the choice is already too wide. So I would say that the consumer has had an opportunity to choose from quite a wide list of cans and that the number of cans of a certain size sold is a pretty fair indication of what the consumer wants.

Mr. Pisciotta. If a consumer wanted a pound of canned peaches, which she cannot get, and the next nearest size is 14 ounces, she would have no choice there.

Mr. Campbell. No, because there do not happen to be enough can sizes to permit that choice.

Mr. Pisciotta. What has the industry done to consult any consumer group to find out what is really wanted?

Mr. Campbell. There has been a very extensive survey made of consumers all over the United States by one of our large canning organizations to determine what the consumer wants, and the list of cans selected for the product involved is based upon that survey. It was made by the pineapple people.

Mr. Pisciotta. Isn't it true that the can manufacturer will manufacture any size and shape can that the packer really requires?

Mr. Campbell. Well, I presume that is true; yes. That is usually true of any manufacturer. If it is feasible, he will manufacture the product the consumer wants. Our recommendations can place no restrictions on the can manufacturer.

Mr. Pisciotta. Do you know any reason for making this package of spaghetti 15¾ ounces rather than 16?

Mr. Campbell. I should say that there was no attempt to make it of a certain weight; the package was first selected and the quantity in it was the result.

Mr. Stewart. May I answer that? The chances are that the contents of that can weigh 16 ounces. We purposely dropped the marked weight to 15¾ ounces to avoid any possibility of having a lot of cans that did not weigh the full 16 ounces, thus violating the old Federal Food and Drugs Act. We could not be sure that every can would weigh 16 ounces.

Mr. Pisciotta. That argument holds true. In order to play safe, you mark it less? But how about the markings on bottles of milk or loaves of bread?

Mr. STEWART. I can't answer the argument about those commodities. I am not familiar with them. But I am able to explain about that can.

Mr. KANZER. If that were true, why is it that the marked weight on a half-pound can of salmon has fallen from 8 ounces to 7¾ ounces, and again, to 7½ ounces?

Mr. STEWART. There are two sizes of can. Columbia River salmon is the kind you will find more frequently labeled 7¾ or 7½ ounces, while the Puget Sound salmon can will hold a half pound of salmon and is always labeled 7¾ ounces.

Mr. KANZER. If you try to cover yourself with a quarter of an ounce, why take another quarter of an ounce and get down to the 7½?

Mr. STEWART. That Columbia River salmon is packed in a smaller can than the Puget Sound salmon.

Mr. BAUCOM. May I say this, that your statement indicates that you are knowingly and willfully misbranding your product.

Mr. STEWART. In order to be safe the trade labels a fraction under the content of the can.

The ACTING CHAIRMAN. I would like to suggest that, so far as it is possible, this general discussion of the subject be withheld until the speakers have all had an opportunity to express their views.

Mr. O'KEEFE. Mr. Chairman, I do not think that is right. I think that since some of these gentlemen may have to go away, the general discussion should be held right here and now.

The ACTING CHAIRMAN. I am certainly agreeable to a thorough discussion as we go along, if that is agreeable to the membership.

Mr. KANZER. Mr. Campbell suggests that the number of cans was initiated and determined by the consumers. If that were true, then his argument would be more or less sound, but I wonder if that is completely true. It seems peculiar that every time the consumer wanted less in his package than the standard size, irrespective of the size of the family. It would occur to me that the canning industry found themselves up against the difficulty presented by the man who found he could put out a can that would simulate the standard size. When he took the quarter of an ounce off and got away with it, the next man took off the next quarter ounce. With this there came to be a series of packages and cans that confused the situation. The industry has raised its own Frankenstein; now they are seeking relief as much as we are trying to help them get that relief.

Mr. CAMPBELL. Well, in the first place, if you will read my remarks you will find I didn't say the consumer initiated the size of the package. The canner, in order to find out by the trial and error method what the consumer wants, starts out packing a wide range of sizes, which in the case of tomato juice in 1937, was 44. But he continues only those sizes he can sell. Why can he sell them? Because the consumer buys them. Thus the consumer tends to determine the size of the package. It has been suggested that possibly the consumer doesn't have a wide choice. There may be some argument to the effect that the fact that even though the consumer buys a certain size this does not represent the consumer's choice. Well, I think that the consumer has had a wide enough choice of cans from which to purchase to enable the canners to determine which ones the consumer prefers.

Now your point, as I understand it, is that the consumer might prefer a size of can which is not being packed.

Mr. KANZER. That was exactly my point. It seems strange that all of these sizes developed are short of the standard size and not above the standard size.

Mr. CAMPBELL. There were no standard sizes.

Mr. KANZER. I refer to sizes holding 1 pound, 8 ounces, and so forth.

Mr. CAMPBELL. Well, we are packing in the industry some 250 different products. It is not feasible to have a can size which will produce 16 ounces avoirdupois of each one of these products without having thousands of sizes. If you will take a size holding 16 ounces of one product and use it for another product you are not going to get 16 ounces.

Mr. KANZER. It seems strange that one of those sizes should not be above as well as below what we consider the standard size.

Mr. CAMPBELL. We have cans that go over the 16 ounces, as well as those that go under.

Mr. KANZER. What proportion would you say would be over 16 ounces?

Mr. CAMPBELL. There is a greater percentage over. Today the No. 2 can is most widely used. This usually contains 2 ounces, approximately, over 16 ounces, and in some products 3 ounces; it depends upon the product.

Mr. KANZER. I think you will agree with me that the No. 2 can started out as a 2-pound proposition; for instance, rolled oats and lard in 1912 in this size always weighed 2 pounds net. It later became 2 pounds, including the can, and now it is anywhere from 1 to 2 pounds.

Mr. CAMPBELL. I don't know the history of the No. 2 can far enough back to say whether or not it ever held 2 pounds. The No. 2 can has been erroneously referred to as a 2-pound can. To what products do you refer?

Mr. KANZER. I will put it generally. Specifically a No. 2 can of lard, contained 2 pounds. The No. 5 can was always 5 pounds of lard net; then the 5 pounds included the weight of the can; now it has dwindled, as has the No. 2 can.

Mr. CAMPBELL. You understand, of course, the can used for canning fruits and vegetables is not the can used for lard.

Mr. KANZER. The weight of the contents of the No. 2 can of canned goods has dwindled considerably and now No. 2 is a designation and has no reference whatever to any weight. But the point is this, you maintain you want a number of sizes. In this committee report there are 14 sizes provided, from 0 to 1 quart. You spoke of having 10 sizes in the case of canned tomatoes. Those 10 sizes are spread over a short limit. We provide for 14 sizes, and they are all standard sizes; certainly we have enough between 0 and 1 quart to satisfy the average requirements of the consumers, be they individuals or families.

Mr. CAMPBELL. The 14 sizes you refer to range from 0 to 1 quart; the 10 sizes I referred to were for tomato juice, and they are spread from 6 ounces to 100 ounces.

Mr. KANZER. Well, I don't know just exactly what you have there. But the Committee report provides enough sizes for the canning industry, and certainly they will be guided a little bit by the consumer's choice.

Mr. CAMPBELL. Those 14 sizes you refer to, I think you will find in this recommended list. In our program there are only 18 sizes recommended for more than one product. Consequently, the number of can sizes you refer to and the number we have recommended are not very different.

Mr. KANZER. Well, they are different, in the sense that those you recommend are not of the standard capacities. No customer goes in to buy an odd number of ounces of anything; yet when you ask for a quart or pound, you get an odd size.

Mr. CAMPBELL. The question was asked of me what we have done to find out what the consumer wants to buy. There has been one very extensive survey. Let me ask the same question. What have you done to find out what the consumer wants to buy of canned foods?

Mr. KANZER. I don't think we should put it that way. We have made no survey. We do know that the customer does not go into the store and ask for an odd capacity or odd size. We don't need an investigation on that.

Mr. PISCIOTTA. May I answer that question? We have had numerous complaints from people who ask for a pound of something, and who discover a label of 15 or 14 ounces, on the article furnished. In order to check, we have sent inspectors out to retail stores asking for a quart of a particular commodity; 90 percent of the time he was given 29 ounces instead of 32 ounces. The retailer, in practically every instance, insisted he has handled that particular object for years and years and always was under the impression that the bottle held a quart. We have followed very many commodities, and gradually from time to time have found packages reduced to 15 ounces, to 14½ ounces, to 14 ounces. That is how we found out what the consumer asks for and expects when he goes in to buy, and what he is getting. The retailer himself, objects, so much so that the Retail Customers Board of the City of New York, Brooklyn, and Jersey City, has gone on record in favor of even standard weights, doing away with the 14-, 15-, and 15½-ounce sizes, and keeping the 16- and 12-ounce sizes.

Mr. CAMPBELL. Don't you see, Mr. Pisciotta, that it is impossible to standardize on 16 ounces and at the same time standardize can sizes? If you are going to give 16 ounces always, of 250 different products, you are going to need different size cans to give 16 ounces of the different products.

Mr. PISCIOTTA. Suppose you do: What of it?

Mr. CAMPBELL. Well, it would lead up into thousands of can sizes.

Mr. PISCIOTTA. Let us see this example here. I have three cans of three different commodities—one is soup, one is sweet peach, and one is asparagus. One size of can would hold 12 ounces of each. Isn't that true?

Mr. CAMPBELL. No; different cans would be needed; one size would not have the same net weights.

Mr. PISCIOTTA. These cans are of one size; each is labeled 10½ ounces. We have opened them and found the contents to be correct.

Mr. CAMPBELL. In that case, they are peculiarly accurate.

Mr. PISCIOTTA. Here are two cans of the same dimensions [indicating] of different commodities each containing 1 pound, 14 ounces. If the standardization was made to 16 ounces, at least these two would use one can. So that you wouldn't have 250 cans for the same weight.

Mr. CAMPBELL. You would have thousands of sizes for the various weights of the various commodities. Take peaches alone; you have a great many packs of peaches, and no two have the same specific gravity, so that for the given weight you would have different sized cans for those different grades of peaches.

Mr. PISCIOTTA. As far as liquid measure is concerned, the size is regardless of the commodity.

Mr. CAMPBELL. Yes. But in order to standardize on a given weight, you would generally have to have a separate can for each separate product or grade of products, although some different commodities could probably be packed in the same size.

Mr. STEWART. Mr. Kanzer, what canned fruits or vegetables put in a No. 1 can weighed 1 pound, or in a No. 2 can weighed 2 pounds?

Mr. KANZER. Generally all No. 2 cans weighed 2 pounds.

Mr. STEWART. What were the products?

Mr. KANZER. I cannot tell you now. I will have to check on it.

Mr. STEWART. I have been in this business for 30 years and never in my life have I seen any No. 2 can of fruits or vegetables which weighed 2 pounds. I wanted to have this on the record, because if you will look over this list of weights as published by the Canners Association you will find that the No. 2 can ranges for various commodities anywhere from 1 pound and 2 ounces up to 1 pound and 6 ounces. Back in the year 1900, there were three cans for fruits and vegetables—the No. 1, what we called 1 pound at that time, the No. 2, and the No. 3. Now, when the Federal net-weight law went into effect we weighed those cans and we never found one that weighed 2 pounds.

Mr. KANZER. Did it weigh 1 pound and 2 ounces at that time?

Mr. STEWART. They weighed about that weight; yes, sir. When the sanitary cans came into existence, they were made to approximate, as closely as possible, the capacity of the old cans.

Mr. KANZER. I can say very definitely—and you have just agreed to it—that the No. 2 can back in 1912, meant 2 pounds, as far as the people were concerned.

Mr. STEWART. We called it that, but you show us some that weighed it.

Mr. KANZER. I would say the No. 2 can generally contained 2 pounds. I will check back and send the information to you. I am very much pleased at Mr. Campbell's answer to Mr. Pisciotta, that there was no difficulty with respect to capacities. If there is any question in reference to weight, there apparently is no question in reference to capacity.

The ACTING CHAIRMAN. There is a motion to proceed with the program. I want to express to Mr. Campbell our appreciation of the discussion he has given us on this subject from the viewpoint of the canners.

PAPER OF ARTHUR P. WILLIAMS, PRESIDENT, R. C. WILLIAMS AND CO., REPRESENTING THE NATIONAL-AMERICAN WHOLESALE GROCERS' ASSOCIATION [1]

This memorandum is submitted in behalf of the members of National-American Wholesale Grocers' Association, who distribute a large percentage of the wholesale grocery volume of the United States.

[1] In the absence of Mr. Williams, this paper was presented to the Conference by M. L. Toulme, secretary, National-American Wholesale Grocers' Association.

The members of the Association, located in every State of the Union distribute thousands of different kinds and types of food and grocery products.

Wholesale grocers distribute a wide variety of food products in package form purchased from many manufacturers and packers scattered throughout the United States and in foreign countries. Many of the products distributed by wholesalers are purchased in bulk and then processed, conditioned, packed, and distributed under the labels, trade-marks, and brands of such wholesale grocers. Millions of dollars have been spent in the development of goodwill in these labels, trade-marks, and brands that now are well known to consumers of this country.

The National-American Wholesale Grocers' Association was organized in August 1933, as the result of the union of National Wholesale Grocers' Association and American Wholesale Grocers' Association, the organization having been accomplished in order to facilitate operations under the National Industrial Recovery Act and the NRA Codes.

Distributors of food products have much in common with Government and consumers in the weights and sizes and shapes of food containers of all types. Unnecessary multiplicity of sizes, weights, and shapes of containers forces distributors, vitally interested in the costs of doing business, turn-over of stock, and the competitive situation, to invest undue amounts in stocks.

Throughout the years, trade associations of distributors in the food field have wrestled with this problem. At the start, it was thought by many food distributors that the problem could be solved without undue economic dislocations and unfairnesses, by simple statues, compelling regularity, uniformity, and simplicity. However, the more the facts are studied and weighed, the more complicated reform becomes. The lists of food products, canned and packaged, are already long and are constantly being lengthened. Nature is whimsical and even stubborn about producing differing sizes and shapes of food products. Legislators as well as distributors may propose uniformity and standardization of containers, but nature seems to be uninterested in duplicating the reforming of sizes and shapes of her products. A willful Nature also complicates the food situation further by producing feasts one year and famines the next, thus dictating wide fluctuations in prices, and prices control consumer buying habits mightily, as all producers and distributors will testify. Millions of consumers, scattered over the face of the earth, also have their own ideas, prejudices, needs, and preferences, depending upon where they live, how they live, and the sizes, tastes, and incomes of their families.

Once there was an old giant who had his own ideas and convictions about the desirability of regularity, uniformity, and simplicity. However, his hobby concerned weights, sizes, and shapes of men. Naturally, he was convinced that men should be large, tall, and handsome, like giants. This giant freely invited stranded wayfarers to enjoy his hospitality overnight and automatically assigned them to a room in which there was a large bed.

If it happened that a particular guest was short and stout, the giant had machinery which during the night stretched the guest to a size to fit the giant's bed. If it happened that the visitor was too lean and lank, the old giant took care of that situation by cutting enough

off of that guest, so that he fitted the bed perfectly. The giant's methods were effective, but few of his guests survived the ordeal.

Despite our natural impatience with the multitude of sizes, shapes, and types of food containers, we sincerely urge that whether we be consumers or officials or distributors, we keep before us the actual complications ahead and make progress, slow but sure, by exercising tolerance, common sense, and good judgment.

One of the objects of the Association, functioning through its Economy Conference Committee, is to participate in trade conferences under the auspices of the United States Department of Commerce with producers, manufacturers, wholesalers, retailers, and others, in order to bring about simplification and standardization of manufacturing machinery and methods in the food trade, to the end that food products may be distributed with the greatest economy to merchants and consumers. The activities of the Association and its functions in this field are described briefly in "Trade Association Activities" issued in 1927 by the Bureau of Foreign and Domestic Commerce, at page 250, as follows:

> The National Wholesale Grocers' Association represents approximately 50 percent of the total number of concerns engaged and transacting probably 75 percent of the total wholesale grocery sales of the country.
>
> In cooperation with the Bureau of Business Research of Harvard University it has made annual studies of costs of doing business. Its canners' conference committee confers with canners and brokers on questions having to do with the promotion of sales of canned goods and the purity and wholesomeness of such merchandise. It endeavors to suggest uniform, clear, and equitable forms of contracts for the purchase of commodities, with the aim of preventing sales litigation.
>
> Its economy conference committee conducts trade conferences under the auspices of the Department of Commerce of the United States with producers, manufacturers, wholesalers, retailers, and other merchants for the purpose of standardizing and simplifying the sizes, manufacture, operation, and distribution machinery and methods.
>
> Its general education committee disseminates information concerning the service of the wholesale grocer. It cooperates with Federal and State departments in the enforcement of pure food laws, with the Department of Commerce in simplification and standardization work, and since 1906 has studied State and Federal legislation and has supported measures to prohibit all adulteration and misbranding of food, designed upon the basis of uniformity with the Federal Food and Drug Act of June 30, 1906, in the statutes of the respective States. Its studies include railroad service and rates, uniformity of laws on commercial subjects (particularly pure foods), and arbitration of commercial disputes.

It is recognized generally in the wholesale grocery field that there is genuine economy in the simplification of food containers, principally through reduction in the number of unnecessary sizes of containers. While recognizing that there are material savings through simplification, and that simplification promotes not only economy but also efficiency in distribution, it should be borne in mind that there is a considerable difference between simplification and rigid standardization of packages which would permit the use of only certain sizes and types of packages.

The establishment of a limited number of so-called "standard" packages not only would result in unnecessary hardship on the packers and distributors of food products, but it also would deprive consumers of various types of packages for which there is a real demand.

This Association takes the position that simplification of package sizes, rather than rigid standardization, should be brought about by

voluntary agreements made in cooperation with the United States Department of Commerce, National Bureau of Standards, under the auspices of its Division of Simplified Practice.

The records of the Department of Commerce disclose that this Association and its members participated in simplified practice conferences for a number of years, and that they have aided materially in the reduction of can and glass container sizes in the interest of the public and of the trade.

This Association's representatives at the general conference with respect to cans for fruits and vegetables included:

Haas-Lieber Grocery Co., St. Louis, Mo.,
Daugherty & Co., Pittsburgh, Pa.,
Francis H. Leggett & Co., New York, N. Y.,
Seeman Brothers, New York, N. Y.,
Griggs, Cooper & Co., St. Paul, Minn.,
Morey Mercantile Co., Denver, Colo.,
Oakford-Fahnestock Co., Peoria, Ill.,
Wm. Edwards Co., Cleveland, Ohio.,
Steele, Wedeles Co., Chicago, Ill.,
Sprague, Warner Co., Chicago, Ill.,
R. C. Williams & Co., New York, N. Y.

Deceptive and Slack-Filled Packages.—The National-American Wholesale Grocers' Association consistently and constantly has condemned slack-filled and other types of deceptive packages in the food industry. The Association has advocated the enactment of legislation to eliminate such practices from the field, and it favored enactment of the measures introduced in Congress by Representative Haugen in 1927, 1928, 1929, 1930, and 1931.

In addition, the National-American Association endorsed and favored enactment of Senator Copeland's bill which became the Federal Food, Drug, and Cosmetic Act of June 25, 1938. That statute specifically provides that food shall be deemed misbranded if its container is so "made" as to be misleading. Food also would be deemed misbranded if the container is so "formed" or so "filled" as to be misleading. These provisions are contained in section 403 of the act, reading:

> Section 403. A food shall be deemed to be misbranded * * * (d) If its container is so made, formed, or filled as to be misleading.

The intention of Congress in enacting these provisions is expressed clearly by the following language in the reports [2] of the Committee on Commerce:

> This is intended to reach abuses which have arisen in the packaging of food through the use of deceptively shaped, formed, or colored containers. It is likewise intended to reach deceptive methods of filling—particularly those known as "slack filling"—where the package is only partly filled and, despite the declaration of quantity of contents on the label, creates the impression that it contains more food that it actually does.

The new statute, shortly to become effective, prohibits, among other things, the introduction or delivery into interstate commerce of any food that is adulterated or misbranded (section 301); and, as has been indicated, the act provides that a food shall be deemed to be misbranded "if its container is so made, formed, or filled as to be misleading" (section 403). These sections are directed at the very practices that this Conference seeks to eliminate.

[2] (Reports of Senate Committee on Commerce to accompany S. 2800, March 15, 1934; S. 5, May 13, 1935 and S. 5—74th Congress.)

Under the provisions of the act of June 25, 1938, therefore, the Secretary of Agriculture has authority to proceed against the use of containers that are so made, or so formed, or so filled, as to be misleading.

The Federal Trade Commission.—On March 21, 1938, President Roosevelt approved S. 1077, generally known as the Wheeler-Lea Act. That statute considerably broadens the provisions of section 5 of the Federal Trade Commission Act. The section originally condemned unfair methods of competition in commerce; but, as amended, the act now declares unlawful not only unfair methods of competition in commerce but also unfair or deceptive acts or practices in commerce.

Section 5 of the act, as amended by the act of March 21, 1938, provides:

> Sec. 5. (a) Unfair methods of competition in commerce, and unfair or deceptive acts or practices in commerce, are hereby declared unlawful.

The Federal Trade Commission long has condemned the use of deceptive containers. Its policy in this connection is stated in the annual report of the Commission for the fiscal year ended June 30, 1938, at page 72, as follows:

> Imitating or using standard containers customarily associated in the mind of the general purchasing public with standard weights or quantities of the product therein contained, to sell the public such commodity in weights or quantities less than the aforementioned standards, with capacity and tendency to deceive the purchasing public into believing that they are purchasing the quantities generally associated with the standard containers involved, and/or with the effect of so doing, and with tendency to divert trade from and otherwise injure the business of competitors who do not indulge in such practices and/or with the effect of so doing to the injury of such competitors and to the prejudice of the public.

The Federal Trade Commission has ample authority under the new statute to prohibit the use of deceptive containers in the food industry.

Canners' Viewpoint Endorsed.—At this Conference the National Canners Association has presented its views with respect to standardization of canned-food containers. A substantial percentage of the packaged food products distributed by wholesale grocers is packed in cans. The growth of the canning industry in recent years has been exceptionally rapid and new products constantly are being added to the list of canned foods. It has been estimated that canning "is a billion-dollar industry." Many wholesale grocers distribute a wide variety of canned food under their own trade-marks, brands, and labels. If arbitrary, rigid standards for containers were to be adopted for canned goods, tremendous losses would be sustained in the wholesale grocery industry through the destruction of plates, labels, machinery, and containers.

The National-American Wholesale Grocers' Association endorses the views of the National Canners Association as presented at this Conference.

Conclusions.—It is respectfully urged:

First: That the Committee of this Conference make further study of, and give further consideration to, the questions involved here in view of the enactment of the Federal Food, Drug, and Cosmetic Act of June 25, 1938, and particularly the provisions of sections 301 (a) and 403 (d) of that act.

Second: That this Conference and its Committee cooperate with the United States Department of Agriculture in bringing about the enforcement of the new Federal statute.

Third: That the work of the Department of Commerce in the simplification field be continued through voluntary cooperation of the various trades involved with the Department, in order that efficiency and economy may be promoted in the industries and that buying may be facilitated for the consuming public.

Fourth: That the Committee of this Conference renew on a vigorous and widespread scale the educational campaign among consumers urging them to make it an invariable practice to "Read the Label."

The ACTING CHAIRMAN. Mr. Toulme, I thank you for coming here today.

DISCUSSION OF ABOVE PAPER

Mr. PISCIOTTA. Mr. Toulme, we are back to boxes, now, and away from cans. Is that right?

Mr. TOULME. We handle both, the canned foods and the packages.

Mr. PISCIOTTA. We have here (indicating) two boxes of pea beans, the same product, the same-sized box, the same commodity packaged by the same people. They have a 1-pound content in one box, 14 ounces in the other. Do you know any reason for it?

Mr. TOULME. In order to get it to the consumer at a price approximately what she has been used to buying it for. I don't know whether that is justified by current market conditions, but I do know, particularly in a rising market, that you do get those gradual fluctuations in the size of the containers.

Mr. PISCIOTTA. In other words, if the market so fluctuates that the peas and beans become cheaper, it is probable you will go back to 15 or 16 ounces?

Mr. TOULME. It is a competition matter.

Mr. PISCIOTTA. Is there a standard price all over the community?

Mr. TOULME. It depends where you buy it.

Mr. PISCIOTTA. So then the price question does not control the contents of the box, does it?

Mr. TOULME. As far as the manufacturers' original sale is concerned, it did control.

Mr. PISCIOTTA. Is it possible that at some time the 1 pound sold at a price and when it was reduced to 14 ounces it sold at the same price?

Mr. TOULME. If the commodity has gone up sufficiently. If the consumer is used to a price, they may try to keep it at that price.

Mr. PISCIOTTA. Your sugar is still packed in standard 1-, 2-, or 5-pound packages. Has the price of sugar changed?

Mr. TOULME. Yes.

Mr. PISCIOTTA. And the customers that buy sugar have to pay a penny or two cents more, according to the current price?

Mr. TOULME. I doubt that, in packaged sugar; the fluctuation is wider in bulk, I would say, than in packages.

Mr. PISCIOTTA. There is no regular American coffee that has been reduced a quarter or a half ounce below 16 ounces. Has there been a change in price of coffee, too?

Mr. TOULME. There has not been a rise upward. I don't believe the fluctuation has been enough to bring about that situation. The manufacturer will absorb a considerable amount of that and doesn't make a change until he has to.

Mr. PISCIOTTA. Does the manufacturer absorb it in pea beans?

Mr. TOULME. Apparently that manufacturer felt he couldn't.

Mr. LEVITT. Isn't it a fact, that a 14-ounce package is put up for a certain class of trade?

Mr. PISCIOTTA. That isn't true of this particular one, because it was cut from 16 to 14 ounces and every one of these boxes is now sold at 14 ounces.

Mr. R. A. SNYDER. Mr. Chairman, I have sat here for several hours and listened to this, and I might say I know something about the wholesale grocery trade because I was in it. I don't know why we cannot get through with this. It is a known fact that a manufacturer packs a 14- or 16-ounce package for certain classes of his trade; there is no question about that. The reason for the difference in the size of the package is in order to meet competition with this chain-store trade. For instance, for years a brand of raisins was packed in 11- and 15-ounce sizes.

Why cannot the manufacturers and the sellers get together on a standardization of packages which would save the manufacturer the additional cost of cartons and cans; the manufacturer would make money, the retailer would make money, and every sealer throughout the country would be satisfied.

The ACTING CHAIRMAN. I think it is the purpose of the discussion to make feasible that accomplishment.

Mr. PISCIOTTA. The reason I have asked these questions is to bring the arguments out. I know the answers. I believe you want to know how to act on the recommendation of the Committee. I know how I am going to vote, but I believe you want to find out from these gentlemen.

Mr. Toulme, is there any reason why peas should not be packed in 2-, 4-, 8-, and 16-ounce packages? Is there a justification for a 7-ounce package of peas?

Mr. TOULME. Well, suppose a man went into business several years ago and decided he was going to popularize a 7-ounce package of peas, and he did it. After that man has spent several millions of dollars for good will, why say it is a crime to sell a 7-ounce package? It is sold at 7 ounces, and paid for at 7 ounces. How is the consumer hurt?

Mr. PISCIOTTA. Did you ever hear of a customer coming in and asking for 7 ounces of peas?

Mr. TOULME. No.

Mr. PISCIOTTA. How about a half pound?

Mr. TOULME. Yes.

Mr. PISCIOTTA. When he asked for a half pound, this package was given to him?

Mr. TOULME. The conversation is this, "I haven't got a half pound of peas, but I have 7 ounces and I am going to charge you for 7 ounces."

Mr. PISCIOTTA. Are you sure that is what happens?

Mr. TOULME. Yes, I am sure.

Mr. R. A. SNYDER. Isn't it a fact that the charge is the same?

Mr. TOULME. No.

Mr. R. A. SNYDER. I happened to be a sales representative of a tea company and for a number of years we packed tea, in quarter- and half-pound sizes, and then in the 7-ounce size. We did that for one reason—in order that our price would be cheaper and meet competition. I want to go on record here that I am for a uniform package.

There is no reason why in the State of Pennsylvania we should have one package size and other sizes in New Jersey, in New York, and in Massachusetts. I think the manufacturers could save a lot of money if they got right down to brass tacks and made the same package.

Mr. TOULME. Well, I think everybody in this room and in the food business wants to achieve your objective. We are willing to help.

Let me ask you a question: There was a wide-open question, and no answer, in relation to the voluntary program, to the effect that somebody could stay out and wreck us. I am wondering if this Association of yours cannot come into the picture when a producer or processor of that type stays out, and ask him why he is staying out.

Mr. PISCIOTTA. The Conference and some individual weights and measures sealers throughout the country perhaps, by prosecution or otherwise, may be in a position to compel certain outlaws to go along on a voluntary basis. But isn't it true that all sealers throughout the country may not be in a position to do that?

Mr. TOULME. Well, I don't know about that. I merely propose the question to you. With a firm such as this, what persuasion other than this can you use?

Mr. PISCIOTTA. A law to compel them to do it.

Mr. TOULME. I should think if you can get the trade to agree, you would not have any trouble.

Mr. PISCIOTTA. We have tried for 2 years and succeeded with many people but we have not been entirely successful.

Mr. TOULME. Then there must be some very good reason I am not familiar with.

Mr. PISCIOTTA. This was one of the reasons we discovered. These two packages (indicating a half-pound and a 7-ounce package of tea) are on the shelf alongside each other. There is a tag above this shelf, 40 cents; there is a tag above this shelf, 35 cents. The housewife walks in and the 35-cent price appeals to her; she thinks she is getting it 5 cents cheaper. She doesn't realize she would have paid the same price if she had bought the other; both were 5 cents an ounce. She never figures that out.

Mr. TOULME. I don't know whether she does or not. I find these women are pretty cagey. She may know she gets 7 ounces in one and 8 ounces in the other.

Mr. PISCIOTTA. Without reference to these women here, I have found women to be the most duped buyers. I have asked hundreds of women who have bought this for years and years, and 75 percent of them were under the impression that they were buying a half pound. Will you agree with me, that is the reason for the difference in weight?

Mr. TOULME. I am not going to do that. But we do believe in keeping up that campaign of getting consumers to read the labels. The truth is there, and there is no fraud. It is a lot easier for the consumers of this country to take the time to read and understand the labels, than to go down this other route, which involves a lot of legislation and the freezing of conditions, when we don't know what we might want 6 months later.

The ACTING CHAIRMAN. Mr. Toulme, the Conference thanks you for this discussion.

At this time I will invite Vice President Tucker, of the Sunshine State, to preside.

(At this point C. E. Tucker, Vice President of the Conference, assumed the chair.)

PAPER PRESENTED BY F. F. FITZGERALD, DIRECTOR OF RESEARCH, AMERICAN CAN CO., REPRESENTING THE CAN MANUFACTURERS INSTITUTE, INC.

No one will question the desirability of the standardization of canned-food containers.

From the weights and measures standpoint, the object of standardization is the protection of the consuming public from deception that may arise from the use for the same product of cans varying only slightly in capacity.

From the canners', brokers', and retailers' standpoint, the object of standardization is to limit the sizes of cans used for each product to those sizes which have been found to satisfy the trade demands, and thus prevent unfair use by competitors of deceptive-appearing containers.

The can manufacturer is wholly in sympathy with this program, provided the standardization is economically sound.

The can manufacturer, canner, merchandiser, and the consuming public agree as to the desirability of standardization, but the can manufacturer insists that such steps as are taken in this respect should not so hamstring the industry as to prevent continuance of the scientific development that has characterized the industry during the past 20 years. It is from this scientific point of view that I wish to approach the question of standardization.

The tin can was never designed as a measure and never can be one. A short history of the development of the can, or canister, will make this clear. After the invention of the tin can by Durand, canners—who then had a small output—made their own containers by hand, usually in the winter months. The sheets of imported tin plate were cut laboriously with tin scissors into body lengths and rolled around an iron body form and soldered. Circles were cut from sheets for ends—the top end with a large hole in it. The three pieces were then soldered together by hand. After the can was filled with the fruit, fish, or vegetables and heated to expel air, the caphole was closed and the venthole soldered.

Gradually these primitive methods were improved. Dies were used to punch out ends—thus the first attempt at standardization. During this period the canner provided the tin plate, cut out the can parts, furnished the coal and the cappers, and piled the finished cans. The laborer making the cans was paid a fixed sum per thousand cans, but his contract provided that he pay not only for the value or cost of any defective container, but also for the value or loss of the can contents of any defective container.

This type of container remained in use for years. The capping and tipping of these containers in the canning factories gradually became a highly specialized operation, and quite generally was let by contract to boss cappers, who hired their own crews and worked for a fixed sum per thousand cans, with the definite agreement that they would pay, not only for all cans showing defective cap and vent closure but also for the contents of such cans. This is one of the first instances of consequential damage contracts.

The automatic body maker was then developed, and as cans could be fabricated by these machines at much less cost than by hand, the canner naturally bought his cans from a can maker who could afford to install such equipment. As the canner formerly held his em-

ployees responsible for defective containers he now asked and received a guarantee from the container manufacturer against delivery of defective containers. This guarantee was initially against spoilage above five cans per thousand, later three cans per thousand, and now two cans per thousand. Under the terms of these contracts, food containers are guaranteed against spoilage or other loss due to defects of the container chargeable to the can manufacturer, above two cans per thousand. This covers not only the cost of the defective container but also consequential losses due to spoilage of contents.

These contracts were the stimuli for the scientific development of the canning industry. Fundamental investigations were necessary to establish the individual responsibility of the can manufacturer, the canner, and the distributor.

Complete knowledge of the procedures and methods used by all concerned is necessary. The character of the canner's raw product, the methods of planting fertilizing, spraying, harvesting, washing, grading, blanching, filling, closing, exhausting, cooling, and warehousing had to be studied. This also entailed a study of the design of equipment, materials used in equipment, and methods of shipment and storage of finished product.

Only two decades ago a can was a can. Only two kinds of tin plate were known—open hearth and bessemer. These could be purchased with so-called coke, canner's special, or charcoal weights of coating.

Today, with the development of new processes of manufacture such as the cold methods of reduction, the canner is furnished with containers especially designed for the particular product he is canning. The chemical specifications of the base plate, the methods of manufacturing the plate, i. e., hot mill or cold reduction, the temper of the plate, the weight or gage of the plate used in the bodies or ends, the profile of the ends, the design of the body, the weight of tin coating, and the character of enamel—if enamel cans are used—are specified. These specifications are fixed and are absolutely necessary if the can is to serve its proper function, which is far beyond that of an ordinary measure. Let me repeat, the canner is furnished with containers made according to specifications and designs adapted to each particular product he is canning.

The container is a miniature steel retort or boiler which acts efficiently in the sterilization of the canned food, and which later can be used as a container for the storage, distribution, and sale of the sterilized product if properly made of suitable material. Canners would not accept today the containers which their fathers used. Development of new types of plate has doubled the shelf life of many canned foods, but at the same time has forced can manufacturers to change their methods of manufacture and the design of can bodies and ends so as to counterbalance the physical weakness of these new types of plate. Beads on the bodies of cans and the apparently ornamental ends are not accidental but are the results of fundamental engineering study.

This short historical survey is given to show that for a century and a quarter the tin canister has been regarded as a container and that the primary object of the scientific staffs of the can manufacturers and canners has been directed to the development of new plate, new processes, etc., which will enable the industry to make a product of increasing merit and one that will retain its high quality during the period of storage and distribution.

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The contents of the container are not necessarily measured by the external dimensions of the cans. Differences in types of cans, side seam bow, profile of ends, methods of fill, temperatures of fill, methods of exhaust, and methods of closure prevent the can from ever being other than a container.

Numerous examples may be cited. With adoption of cold-rolled, low-metalloid plate, paneled bodies were encountered with the larger size of cans for pumpkin. Pumpkin cans must be filled at high temperature on account of their slow heat penetration. This difficulty was partially solved by the use of "domed" or convex ends, which permit the use of a normal fill but produce a lessened head space in the can, thus reducing the final vacuum and lessening the paneling. With citrus products, the use of nonspilling closing machines and gas-flow closure demands a can shorter than the former can, although both contain the same volume of contents. With vacuum filling machines for pork and beans the can may be shortened in height with the finished can containing the same cut-out weight.

Products are packed in cans which are scored on the body near the ends and opened with a key. If these products are liquid or semi-liquid, the cover is depressed so that the food will not leak out when the can is opened. The heights of some sizes of salmon cans differ according to whether the cans are hand-filled or machine-filled. The machine-filled cans are two-sixteenths of an inch higher than the hand-filled in order to guarantee the same cut-out weight. Tomato juice packers must vary the heights of containers to compensate for temperatures of filling. Packers who fill at 160° F can use a shorter can than those who fill at 190° to 200° F, because of less contraction on cooling. The trade demands a uniform quantity of product in this case and is not interested whether the can is one-sixteenth of an inch taller or not.

The Federal Government contracted for roast beef in cans containing 24 ounces. Those packers who used thermal exhaust could use a can three-sixteenths of an inch shorter than those who used mechanical vacuum. The Government was not interested in the dimensions of the container but in the quantity of food in the container. Numerous other examples could be given.

As stated before, efforts to increase the service life of containers demand changes in chemical composition of the tin plate. These changes in chemical composition cause differences in physical characteristics of the tin plate, and these changes in physical characteristics cause subsequent changes in body design and profile, and in methods of canning and merchandising.

The can manufacturers, as well as all other factors in the food industry, are vitally interested in can standardization, with the immediate purpose of preventing consumer deception, but they ask that such standardization be made without freezing the scientific development of the can manufacturer and canning industry.

I believe the standardization committee has presented an excellent program. As a matter of fact, there could be, in my opinion, only one criticism offered, and I believe this criticism is secondary. Canada also considered, for instance, the idea of stepping up the sizes of cans by 4-ounce intervals but soon saw the impracticability of such an

idea and now recognizes 66 sizes of containers. These 66 sizes are used for many less products than are now canned in the United States.

Arbitrary minimum nondeceptive volumes of fill corresponding to the figures established by the BAE and enforced under the Federal food law, or average declared fills, must be established for each product and it is immaterial in what units such volumes are expressed. This is necessitated by differences in specific gravity of products, methods and temperatures of filling, methods of closure, necessary differences in end profile design, etc.

It would be extremely desirable to have at least a uniform method with Canada, England, Australia, New Zealand, South Africa, etc., but the British nation uses a different gallon and fluid ounce than ourselves. We are in the same position with France and continental Europe, who use the metric system. It is extremely unfortunate that our weights and measures are not on a decimal basis like our monetary system, but it would be foolish for us to try either to adopt a new system of weights and measures or to change the quantities which have been found desirable in the trade. We probably must base our volumes on a cubic inch or the fluid ounce, but, as previously stated, the choice of units is a secondary matter, as the prevention of consumer deception is all that is necessary from the weights and measures standpoint.

In conclusion, let me say, first, the can manufacturer will make all sizes of cans demanded by his customers; second, the can manufacturer will be forced to limit his responsibility for the service life of containers to the extent that the can specifications do not accord with sound engineering and technological processes; third, the can manufacturer maintains that the tin can is an inherent tool in the production of canned foods and that its subsequent use as a container is a fortunate coincidence that has made the industry possible—however, this use as a container is so involved with physical and chemical considerations that the external dimensions of the can should not, and cannot, be taken as a precise measure of the contents of the can; fourth, canned-food containers may readily be standardized by the simple method proposed by the industry committee, which establishes volume fill as a basis.

This proposal suggests, first, that standardization be established by products; second, that there be established for each individual product certain volumes which may be packed, making these so different in quantity that the containers will not be confusing to the purchasing public; third, that in following the above program no mistake be made such as trying to change our whole system of weights and measures, but that we select those commercial containers which comply with the different requirements and whose use can be established with the least cost to all parties concerned. International standards may later be developed, but let us not now overemphasize the gill, pint, quart, gallon, and pound, as even these units are at times grossly misunderstood. We have the dry quart and the liquid quart; the Imperial gallon, the United States gallon; the troy ounce, the Imperial ounce, the avordupois ounce; and other units. It is not our business to fix the definite units of measure but only to see that there is no deception to the consumer.

DISCUSSION OF ABOVE PAPER

Mr. Pisciotta. Dr. Fitzgerald, our recommendation No. 5 provides:

> Containers of different standards to be so constructed that the different sizes are easily discernible, this to be accomplished by fixing the diameter or the base measurements of the container and letting the industry change the height of the respective containers to fit the particular commodity.

Now, you could put out a 16-ounce container for different commodities, according to the nature of the commodities, and the temperature at which it has to be sealed, by varying the height of that container.

Dr. Fitzgerald. Theoretically, it is possible. The objection to it is that you would run the number of the containers into the thousands, so that, instead of having 55, we would have 2,500.

May I give you another example? A question was asked about marking of 16 and 15¾ ounces. I think Mr. Campbell well explains that where the indicated weight on the can varies. You start the season early, and the first corn coming in is not mature. We like to fill corn at 190° F, to get air out of the corn. But if you heat this green corn to 190°, it would be absolutely impossible to get your weight. You have to drop it to 170°, and then you are in danger of getting under the minimum weight. Maybe a week later, a new field will come in and you will have no trouble getting the weight in.

Mr. Pisciotta. Then if you purchase that same size can in another part of the season, you wouldn't get the same weight?

Dr. Fitzgerald. The chances are that you always get the declared weight. I would say the weight would tend towards the minimum at times, and at times towards the maximum. They always mark the weight at the minimum.

Mr. Pisciotta. We would get the same markings on the label. Whether it was 14½ or 16 ounces, it wouldn't make any difference?

Dr. Fitzgerald. Yes, you would always get the marked weight.

Mr. Pisciotta. Then it wouldn't make any difference about this difference in the corn, you would still have the same container?

Dr. Fitzgerald. Not in all cases. If you are canning tomato juice in the 12-ounce size at 160° F and at 190° F there would have to be different sizes for the different temperatures.

Mr. Pisciotta. Do you recall these two 15-ounce cans [indicating cans of coffee] and the reason given to us for not being able to bring this up to 16 ounces?

Dr. Fitzgerald. I image the reason for not bringing it up to 16 ounces is that the packer doesn't want 16 ounces in there.

Mr. Pisciotta. Do you remember, Dr. Fitzgerald, that you said that if this was raised a fraction of an inch, there might be a danger of collapsing the can?

Dr. Fitzgerald. I remember we didn't say a fraction of an inch. You can perhaps get more coffee in that can. The lighter the roast the heavier the coffee, and the more you get in.

Mr. Pisciotta. You remember you told about the impossibility of changing this to 16 ounces?

Dr. Fitzgerald. As I remember, you were talking about changing it to the diameter of 404. We can increase the height of that can within certain limitations, but the amount within which you can increase the height depends upon the diameter of that can.

Mr. PISCIOTTA. The weight now has been increased to 16 ounces and the can is a little higher. This is an example of one commodity, different brands, with four different sized cans. I am trying to illustrate it was possible, although we were told it was impossible, to change the can to 16 ounces.

Mr. ACKERMAN. Dr. Fitzgerald, you have been very kind in answering all of our questions, and I would just like to ask if I were a manufacturer of a food product and ordered some gallon cans from your company, would you at my request make a deeply recessed lid to fit those cans so that they would be short approximately 8½ cubic inches?

Dr. FITZGERALD. No, I do not think we would. We have had that put up to us and we declined.

Mr. WALDMAN. Mr. Chairman, it isn't my purpose to curtail or limit discussion on this thing, but I would like to suggest that it seems to me perfectly obvious that all of the answers given to Mr. Pisciotta's inquiries have been identical. I am thoroughly convinced, and I believe most of the members of this Conference are convinced, that there can be a method of standardizing packages. I see no need for asking each successive speaker the same questions and getting the same answers.

I believe that this Conference is deeply indebted to Mr. Pisciotta and his Committee for their study and effort and the time that they have put forth on this all-important subject. But I would like to see some of the discussion limited; this subject could be discussed from now to the end of the Conference, and we wouldn't know any more then than now.

Mr. J. G. ROGERS. Mr. Chairman, I feel the same way as Mr. Waldman. When we have developed all of the technical features, I would like to be heard. I have been trying to hold myself back until that time.

The ACTING CHAIRMAN. If the Conference wants to vote on this question now we might bring this particular phase to a close.

Mr. A. EDWARD SNYDER. Mr. Chairman, these men are, as I see it, representative of the various industries, and when we hear the final two speakers we should have more or less of a complete survey.

Mr. PISCIOTTA. May I say, Mr. Chairman, that I think we are finished and can go along without further questions.

PAPER PRESENTED BY J. S. ALGEO, HAZEL-ATLAS GLASS CO., REPRESENTING THE GLASS CONTAINER ASSOCIATION OF AMERICA

I speak as a representative of the glass-container industry, manufacturers of bottles and jars for foods. The glass-container industry is engaged in a broad program of redesigning and simplifying its packages, and this program ties in with the general idea of this Conference and also with the deceptive-package feature of the Food, Drug, and Cosmetic Act. The primary purpose of this program of ours is to reduce our costs of production so that we can sell our containers at lower prices and thus obtain greater distribution. It is obvious that with fewer styles and sizes to make, we can produce them at a lower cost; so if by simplifying and standardizing our packages—which is the objective you have in view—we also benefit ourselves, then we are killing two birds with one stone. We are helping ourselves and also working toward your objectives.

Glass-container designs up until a few years ago and still, to a very great extent, were relics of the old days when bottles and jars were made by the so-called hand-blown method, before the days of mass production by automatic machines. Because costs were lower and because there was not as much difference as now between the cost of producing items of various styles, but of the same sizes, there was a pronounced tendency to make containers so that they would look as large as possible with relation to the actual capacity. This tendency largely accounts for the extra-tall bottles which you see today and for tall bottles with depressed panels in their sides and of other shapes which look large in comparison with a simple round shape which holds the same. Likewise, because mold costs with relation to the total costs were much lower then than is true now, there was a tendency to build molds for smaller quantities than would now be considered economical and for freakish shapes which would now be considered impractical. This fact accounts in a large measure for the multitude of bottle and jar designs that are now in use. There is no question but that the glass-container industry is making more shapes and sizes than are needed, and it is this condition which we are endeavoring to correct. It is a fact that a plain round, relatively squat, glass container is the easiest and cheapest to produce and that the farther away we get from such a shape, the greater the cost of producing. Thus it happens that the least deceptive glass container is also the lowest in cost, and thus it happens that it is to our interest to simplify and standardize our containers.

This program of redesigning and simplifying design has not taken the line of bringing about complete standardization—by which I mean we have not attempted to design a jar to hold, say, 1 pound of preserves so that all 1-pound preserve jars made by all manufacturers would be exactly the same. It has taken the line of developing general standards of design within which general standards any glass manufacturer may vary his design to suit his own or his customer's preference or requirements. In actual practice the result is that jars or bottles intended for the same product are pretty much alike, regardless of the manufacturer, because if the general standard is complied with, there can't be a great difference in the bottles or jars produced by different manufacturers. At the same time, there is room left for a variety in style, which we find is still demanded and which we believe will continue to be demanded, because one of the chief merits of a glass container as a package for food is its eye appeal. This eye appeal helps to sell food in glass; and so in order to make best use of this eye appeal we believe that variety in design will always be demanded, both by the packer and by the consumer. In actual practice this program also results in our being called upon to make fewer items than heretofore on account of the elimination of many odd and freakish designs due to the fact that the packer has a wide choice of designs in stock packages which suits the packer's requirements much better than his odd or private mold designs. In turn this concentrates our production on fewer and more desirable items, all of which makes for lower costs.

The technique of making glass containers has improved to a very great extent during the past 15 or 20 years. We can make them faster than we could then, and, equally important, we can make them at lighter weights and stronger. Through this redesign and simplification program we are trying to take full advantage of this develop-

ment in technique, and in doing so we are not merely designing containers that are more practicable from our standpoint, but we are also designing them to be more practicable from the standpoint of the packer and of the distributor and of the consumer. We are designing containers which are most practicable to manufacture with our present-day equipment; and since they are most practicable, they are also most economical; and, again, since they are most practicable, it results in greater uniformity in design as between containers made by different manufacturers; and, finally, since they are most practicable from a manufacturing standpoint and most economical and more uniform, this program of the glass industry ties right in with your program and with the Food, Drug, and Cosmetic Act.

What I have just said refers to simplification or standardization of design rather than to standardization of sizes. As we see it, there is not much the glass-container industry can do toward standardizing sizes. That will have to come from the packer who uses our containers. We would, however, welcome a greater standardization of sizes than now exists, because such a standardization would round out and complete our simplification program. As a matter of fact, we are endeavoring to the extent of our ability to limit the number of sizes. In this program of ours we are setting up specifications for only the sizes that are most popular and doing our best to sell only those sizes. In addition to that, we plan to cooperate with food industries using our containers in an effort to further our program of simplification and standardization. In my opinion, it would not be practical to standardize to the point where we would have one line of jars for packing all sorts of semisolid products and a line of bottles to pack all liquids. Each kind of product has its own characteristics and oftentimes requires a special type of container. Jams, preserves, mayonnaise, and mustard require jars with fairly wide openings. Pickles, if "placed" in the jars, as opposed to being "thrown" in, require jars of certain heights and diameters and with a certain type of shoulder in order to hold a certain number of pickles and to prevent floating. Olives, when "placed," require a certain type of jar for the same reason. Even bottles to hold liquids could not be of the same sizes for all products, because some liquids require greater head space to take care of the greater expansion of one liquid than another. Products sold by weight sometimes vary in specific gravity, hence they require jars of different capacities to hold the same weight of contents.

The best that could be done would be to adopt standard sizes for each type of product going into a container, and while there are many obstacles against bringing about a complete standardization in that respect, and while I doubt whether it would be in the best interest of the public to do so, nevertheless there is a very great amount of standardization of sizes now, and the tendency seems to be increasing. Milk bottles, mostly through State laws, are standardized as to size—quarts, pints, half pints, and quarter pints, and, in some States, one-third quarts and 10 ounces—the last two sizes mostly for the restaurant trade. Milk bottles, as to styles, have been standardized through the cooperation of glass manufacturers and milk companies. It is certainly fitting and proper that containers for such a vital necessity as milk be standardized so that the consumer cannot possibly be deceived and so that the containers can be produced and

sold at the lowest possible level. Household fruit jars, for many years, have been standardized in half-pint, pint, quart, and half-gallon sizes—not through any particular cooperative effort but by common consent. This is an advantage to all concerned. In recent years mayonnaise containers; honey containers; and preserve, jelly, and apple-butter containers have been standardized as to sizes, but not as to styles, through the cooperation of these various industries with the National Bureau of Standards. These standards have been observed fairly well but not absolutely—and I don't see the necessity, nor even the wisdom, of bringing about an absolute standardization of containers for products which are not necessities, as in the case with milk.

From a selfish standpoint, the glass manufacturer would welcome a greater degree of standardization of sizes, but we feel we are almost powerless to bring it about, because, after all, we are obliged to furnish what our customers want. If one manufacturer refuses to make a certain size, his competitor will make it. My observation is that there are many obstacles to a rigid standardization of sizes. One of the most important is the fact that foods, to a great extent, are packed to retail at certain prices—for instance, 10 cents or 25 cents. When the price of raw materials goes up in cost—for example, peanuts for peanut butter—then the amount to retail in a jar for 10 cents goes down and a smaller jar is needed. The reverse is true when the price of peanuts goes down. The American housewife seems to want to pay only certain popular prices. She wants to buy a quarter's worth of peanut butter or jam. If a grocer asks 27 cents, she oftentimes does not buy. I am not qualified to speak on such a subject, however, as it is the problem of the packer to whom we sell our glass. I am confident, however, that this popular-price complex is a serious obstacle to enforcing a rigid standardization of sizes, and I don't believe any enforcement should be attempted except such as can be obtained by voluntary cooperation among members of the same industry, and the amount of this cooperation and the success of the venture will depend upon many factors, such as the state of business, competition, cost of production, location of consuming area with respect to the manufacturer, and so on. To attempt an enforcement of an arbitrary standard of size when that size does not synchronize with production costs and with the purchasing power or buying habits of the housewife, is running a serious risk of curtailing business. The housewife is the purchasing agent for the household, and the manufacturer must produce what she wants or he does no business. We believe that a certain flexibility must exist in order to keep in tune with changing conditions, for, after all, it is more important to get food products to the consumer at the lowest cost and in greatest volume than it is to maintain a rigid standard for sizes. The attitude, therefore, of the glass manufacturer is that we would welcome a further standardization of size from our own selfish viewpoint but that we cannot enforce such standards, and it is doubtful whether an arbitary enforcement would be in the public interest.

The glass manufacturer's chief function at this time, in my opinion, is primarily to improve the design of the container so that it will be more practicable to all concerned, and, secondarily, to reduce and standardize the sizes—necessarily following the demands and requirements of his customers and the food manufacturers in that respect.

We are endeavoring to perform these functions, and in so doing we are furthering the objectives of this Conference by the following means:

We are designing and producing containers which are more practicable from our standpoint. Being more practicable from a manufacturing standpoint, they are produced at a lower cost, and this saving is passed along to our customers and to the public.

We are designing and producing complete families of containers of one general style so that a packer, if he has to change the size of his container because of increasing or decreasing costs, or for other reasons, can do so quickly and without having to have special molds built. This results in greater flexibility, both for the glass manufacturer and the packer, and necessitates a fewer number of molds on the part of the manufacturer in serving his customers.

We are producing containers which are more practicable from the packer's standpoint—more uniform and less freakish in design—much lighter in weight, and yet stronger than old-type containers. The packer thus obtains greater speeds on his filling lines and less breakage, and because of lighter weights he makes a very considerable saving in transportation costs, which eventually benefits the consumer.

We are producing containers which are more practicable from the consumer's standpoint—containers which fit better on pantry shelves and in refrigerators, and even more important, containers from which the contents can be removed without spoiling his or her chances of reaching heaven.

Finally, we are producing containers which, because they are simple in design, cannot be considered as being deceptive.

It is not to be inferred from my remarks that this program of simplification has been completed—it is well under way and great progress has been made, but the greater part has to be done. When completed it will result in our having containers which are more practicable from the point of view of all interested parties, fewer items and lower-cost items. It has been my purpose to tell you of the program which the glass container industry has outlined, and to show you that it synchronizes with the work in which you are engaged. We are in favor of simplification and are working to that end and are willing to cooperate toward further simplification and standardization within the limits of the peculiarities of our own product and of the requirements of our customers.

The Acting Chairman. Thank you very much, Mr. Algeo.

PAPER PRESENTED BY CHARLES R. COSBY, EXECUTIVE SECRETARY, LABEL MANUFACTURERS NATIONAL ASSOCIATION

Labeling is an intermediate step in the process by which goods in containers are distributed to consumers whose interests deserve certain safeguards as a matter of public policy. It is a reasonable expectation that honesty and fair dealing shall prevail among those who offer a public service while enjoying the privileges and profits of our system of private property and free enterprise. Granted that consumers are entitled to buy what they want from sellers who are offering their goods in the market places, the problem is to insure a meeting of the minds without coercion or deception. Naturally, this calls for a common understanding of terms and definitions and is, in effect, what is meant by the expression "Standardization of Packages." The problem of creating that common understanding of terms and definitions is uppermost

in the minds of officials charged with the interpretation and enforcement of sound public policy. Government has the right to declare that certain terms or definitions shall be used only with a certain defined meaning. Private industry has the capacity to familiarize consumers with the physical characteristics of the goods so described. The inducements which normally influence private industry to assume that task will be mentioned later in this study of the subject.

The fact that labeling is a middle step along the route from production to consumption makes it possible for label manufacturers to look in both directions, as it were, in considering the questions that arise. In the same way that convenient packaging has proved itself an important element in the vending of commodities, informative labeling has become an indispensable link in the point-of-sale identification of goods. The problems of standardization have a double effect upon the business of preparing suitable labels. First, there are problems pertaining to packages and their contents; and second, there are problems pertaining to the preparation and use of labels. If the label manufacturers shall be able to contribute some helpful thoughts to this interesting subject, it will be due to their practical experience with a wide variety of containers affording them an excellent opportunity to observe the causes and conditions that tend to create diverse rather than common characteristics in containers and labels. These tendencies to generate irregularities are the forces with which one contends when searching for acceptable and practicable standards.

Looking backward toward the beginning of the producer-to-consumer route, the label manufacturer observes that in a system of free enterprise the vending of merchandise at retail is an activity offering a wide range of choice in respect to the manner of its accomplishment. Good judgment in appraising and satisfying the wants of the buying public is rewarded by volume sales, mass production, and low costs. The choice of an acceptable unit of quantity is made after a careful study of the consumer's needs and preferences. The choice of a suitable container depends not only on the quantity to be sold but also the physical aspects of the product. Nothing is neglected which may be used as a means to influence the consumer's preference among the many uses for her money. The consumer's freedom of choice is therefore the proving ground on which are developed the effective want-satisfactions, the efficient distributing system and the highest rewards for the enterpriser. The success of this system has been too well proven to need any special pleading at this time.

Looking forward to the consumer and her day of marketing, one is impressed with the tremendous responsibility borne by the label when it comes to the counterside decisions made by her in choosing from the vast assortments of packaged goods. Ample evidence of the strategic position of the label at this point is the huge sum spent for natural-color reproductions and the artistic merit of labels intended to represent the high quality of the food contents. Does the consumer know how to evaluate the claims of rival products? Does the label tell facts which she wants to know? Can she rely on what she sees? It is not the fault of the consumer when she is unable to find consistency in the claims of quality and quantity. Lacking authentic information, she is often without the means of making comparisons and evaluations. A packaged product does not always offer favorable opportunities to examine and appraise the goods. Substitutes for

those opportunities to see and evaluate do not appeal to the same faculties of mind. Here is a demonstration that the consumers' choice is dependent upon a common understanding of the term or definition of identity by which a product is called. The overzealous seller is apt to indulge in exaggeration. The statement of weight may be as unconvincing as a mathematical symbol. The quantity is sometimes "generously" represented by means of oversized containers. In a practical sense, quantity and quality either balance or unbalance each other. For example, 8 ounces of canned soup may be equal to 16 ounces of the same quality of soup diluted with water. The proportion of inert ingredients affects both quality and quantity. This partly explains the need for a definite standard of quality. There are many analogies between foods and drugs, but there should be more. In the field of medicine, a drug is not standard unless it is defined in the official compendium.

One should not assume that the education of the consumer in respect to standards is an unrequited labor on the part of the sellers of packaged goods. On the contrary, it offers handsome rewards to those who are ambitious to serve the public for profit. The economies of mass production are made possible by the fact that manufacturing processes may be standardized to the point that automatic devices can be set up for long runs of identical operations. The frequency of any operation determines whether machines and tools shall be set for automatic or hand control. The materials either cut economically or they cut wastefully. The materials from which containers are made, such as wood veneers, tin plate, paper, paperboard, fiberboard, glass, etc., are all subject to their own manufacturing conditions which determine the most adaptable sizes and dimensions.

Under present conditions the label manufacturers can have no preconceived notions in regard to the shapes or sizes of containers in which goods are packed. They are asked to make labels to fit certain containers and they make them that way, as economically as conditions will permit. Label manufacturing is a made-to-measure proposition. There is practically no such thing as a stock label. No two product labels are alike in all respects. Too many of them are unlike in every respect. There are said to be as many as 150 different sizes of labels for cans for fruits and vegetables. Obviously, labels for all these sizes cannot be cut economically from any one size of paper sheet, which means that label manufacturers must be prepared with many sizes of paper, and the paper mill must produce such sizes from the paper machine, whatever may be its width. And it means that printing presses of various sizes must be available if the work is to be done economically.

If a canner wishes to change the capacity of a can, he may change either the height or the diameter, or both. If all cans were made the same height or the same diameter, labels could be made uniform in at least one dimension and it would be possible to set the paper-cutting machines so that their operations could be repeated with sufficient frequency to effect economies in production. All that has been said about cutting label paper applies in principle to the manufacture of cans from tin plate. Both are cut from stock of certain limited sizes.

Prospects of economies in label production are dependent upon long runs of uniform sizes of labels, and of course that depends upon greater uniformity in the sizes of containers which the labels must fit.

If the sheet cannot be completely filled with labels of the same size, economies cannot be effected. If the sheet is only partially filled with a variety of labels of different sizes, a waste of paper is inevitable—not raw paper but paper bearing a labor cost of many handlings. The greatest economic loss, however, is due to the substitution of time-consuming hand adjustments in platemaking, and in cutting finished labels from the sheet, a process that has some of the elements of a jigsaw puzzle.

Labels for boxes, bottles, crates, cartons and in fact all classes of labels suffer from such variations in the sizes of containers.

The machines that affix the labels to the containers are also adversely affected by a variety of sizes. Each change requires a stoppage of the machine and the adjustment of the mechanism that holds the labels in position. Of course this retards the production and increases the cost.

Packing cases cost less when made in standard sizes. Special can sizes make it necessary to use oversized or odd-sized cases which are not efficient in proportion to their shipping weight.

It would be difficult and perhaps tedious to enumerate all the collateral effects set in motion by even slight departures from customary or natural forms. There is ample evidence that too many variations in quantity and quality are the result of misdirected zeal. Most careful observers now agree that there should be an authoritative standard of identity of every product sold in a container. The methods for attaining that objective are not entirely clear. Experience in that field is too recent to admit of dogmatic opinions. A division of responsibility between government and private industry seems to be the course best calculated to serve profitably both private industry and the consumer.

Probably the most important contribution to consumer familiarity with contents and can sizes was made by the late Dr. Bigelow, who established in true scientific fashion the proper weight of contents for each size of cans of normal quality fruits and vegetables. This was a self-imposed task under the direction of the trade association of that industry, the National Canners Association, and it is a splendid example of the cooperation which organized industry is able to offer in the field of standardization.

The process of educating the consumer probably should be based on uniformity of method in declaring the required label information. In matters of education one can borrow profitably from the field of applied psychology. If four facts regarding the product must be stated, there should be a rather definite pattern for presenting those four facts, free from obscuring data, so that the absence of any essential declaration will be noticed. Any departure from a legally defined standard of identity should be indicated in a specially allocated label space and in prescribed terms. The relative prominence of essential data should be definitely fixed. When the consumer can see that there is consistency and uniformity in presenting the terms and definitions by which the merits of competing products may be judged, she will become a discriminating buyer and the merchants seeking her favor will not risk offending her by inadequate information. When the consumer becomes better accustomed to the standardization of packaged goods, the packer will have less excuse for odd sizes and

more regard for the economies and other rewards of the policy of standardization.

The ACTING CHAIRMAN. Thank you, very much, Mr. Cosby.

Mr. BOYLE. Mr. Chairman, I would like to ask the last speaker if there is any attempt to regulate the labeling of quantity. Frequently you will see a statement of "average weight, 8 ounces," or "not less than 8 ounces," or "not less than 8 ounces when packed." I have here a label from bread, which reads: "net weight 15 ounces, or less." What does that label mean?

Mr. COSBY. I will not undertake to answer for the producer of the product. The label manufacturer takes his orders from his customers and does not inquire as to the honesty of the weight declaration, or matters of that sort. That question probably should be directed to the producer of the product rather than to the label manufacturer.

GENERAL DISCUSSION OF REPORT OF CONFERENCE COMMITTEE

Mr. BUSSEY. Mr. Chairman, I would like to make a motion that the report of the Committee be adopted and approved and that the present Committee be continued with such changes in the personnel thereof as the President of the Conference deems necessary, the Committee to confer with the different branches of the industry for the purpose of working out and seeking the introduction of necessary legislation pertaining to standardization of package commodities, as outlined in the Committee report.

Mr. LEVITT. Mr. Chairman, Mr. Pisciotta and his Committee spent a great deal of time on this matter and are to be congratulated on the wonderful job they have done. I realize today there have been some matters put forward that will probably need some further consideration and discussion. However, I think this is one of the most progressive steps that has been made by the Conference, and while I have not gone into it personally, I am satisfied to take their views in this matter. I want to second the motion as put by Mr. Bussey, of Texas, for the adoption of the report and the continuation of the Committee, and for their meeting with these various people, so that the differences that have arisen can be settled and adjusted.

Mr. J. G. ROGERS. Gentlemen, I have sat here this afternoon and listened to all the ramifications of this subject. I think in principle we are all in agreement with what the Committee is trying to do. But the subject is replete with technicalities and there is danger in moving too fast. I am thoroughly in accord with the thought that there have been abuses in the package packing industry. However, the packing industry has its problems, too, undoubtedly, and we have to approach this subject in a common-sense manner.

This report provides for standardization by weight. I believe the experts who appeared here this afternoon have definitely shown that if you do that you are going to get into thousands of sizes of containers.

In New Jersey we tried to approach a problem of coordinating weight and volume and found our snags there. We found that there were 50 different grades of apples, all weighing differently, and that to arbitrarily set one weight for a bushel of apples was out of the question. And we found the same commodities grown in different States will vary in weight. Therefore, in the packaging of viscous and semisolid foods especially, you will have different densities, and other factors enter into it, so that in different States different sized

cans must be provided to contain a pound of the same commodity. Also you have different recipes in the industry, which result in different viscosities and densities, and which again cause differences in the size of containers to contain the same weight.

I was very gratified to hear this afternoon a member of one industry say he refused to make a false container. We have found whisky bottles made up as pints, although they contained only 14 ounces. When I made a statement to that effect on this floor, I was challenged, and it was said that no member of the industry would make up and falsely label a bottle like that. I wonder if the label manufacturers have given us the cooperation they should and could have done. You fellows have run across markings you need a magnifying glass to read. Those things are things that can be corrected. The ethics of the manufacturers should be raised so that they will not put some of those things on the market. But when you get to canned products, you face a big problem, and as I grow older, I am a little more hesitant to jump into these things.

Gentlemen, I think a very splendid effort has been made here to develop this subject, to show what is wrong, and what we might be able to do. Perhaps we will have to break down this situation into certain commodities that will lend themselves to sale by weight, as against others which should be standardized by volume.

I think the Committee should be continued, because it has done such splendid work, Mr. Pisciotta particularly. I don't believe anybody in the country has ever before made such an extensive study as this. But I think there should be even more study and that the Committee should find out if they can really go through with the recommendations in this report which, as I see it, is very arbitrary in recommending something which may not, in effect, work out. It seems almost impossible for the various container manufacturers to meet this, without putting on the market such a multitudinous number of sizes that the same confusion would exist that we encounter at present.

I am wondering whether all of this hasn't been considered in a very able fashion by the Food and Drug Administration in the Department of Agriculture. Surely they must have encountered these things in their experiences through the years. I don't know whether they have been hesitant about approaching standardization or whether they have just chosen the easier way, in advocating that there be a statement of contents on the food package and that everybody shall be guided by that. It is a question, of course, whether we can protect the customer against himself. The average American today has education enough to be able to read and understand a label on the package, if that label is the proper kind of a label. Perhaps, after all, if industry knows what we want, it may clean its own house so that we can get somewhere without an upheaval, which is a thing to avoid.

Have we gone far enough to put these recommendations in a bill before Congress? May not various experts come in and show the impracticability of the plan and demonstrate that it is something which cannot be accomplished? Mr. Pisciotta and his Committee describe what they believe is a simple solution. But I think it has been developed here this afternoon that the problem is not an easy one to solve, that we still have some distance to go yet before you can confidently prescribe the remedy. I think the Committee should by

all means be continued, in order to contact other industries. No doubt the Committee has done much along this line, but possibly some new thoughts may have been developed today. For these reasons, I shall oppose the motion as it stands, to adopt and approve the present report.

(As an amendment to the motion to adopt the report, a motion was made and seconded that the report be laid on the table but that the Committee be continued and report back to the Conference at some future date.)

Mr. LEVITT. Mr. Chairman, the Food and Drug Act has been mentioned in the debate. You and I know that this act relates primarily to quality. Why should weights and measures departments sit back and rely on that act to regulate quantities. If we can handle the quantitative end, let us do so.

I think the original motion covers the situation; the Committee is to confer with these gentlemen and reach some agreement. If we table this motion, we will just be putting it off another year and we won't be accomplishing anything.

Mr. J. G. ROGERS. The recommendations in that report are what will be tabled. If the matter be referred back to a committee with instructions to work it out with the various members of the industries affected, that will put the Conference on record as not taking an arbitrary action. The original motion provides for definite approval of everything in the Committee recommendations, although it has been shown here this afternoon that they cannot be carried out.

(A motion was made and seconded to table the amendment.)

The ACTING CHAIRMAN. We are voting on the motion to table the amendment.

(The question was taken and the motion was agreed to.)

Mr. ACKERMAN. Mr. Chairman, speaking on the original motion, I am in favor of the Committee report. A few moments ago a representative of a can company stated that this company would not manufacture a depressed lid to make a gallon can short 8 cubic inches. I want to tell you I have three cans with the label of that company on them. They were measured yesterday by the National Bureau of Standards; one of them is 8.6, another is 4.7, and the third 6.2 cubic inches short.

Again, I may say that, through the help of Mr. O'Keefe, we learned last summer, that there was a carload of salad dressing coming to Minneapolis, short weight. When we investigated, we found glass containers which had "one quart" blown in the glass, although the bottles would hold this amount only when filled to the overflow point.

If you will permit me, I will read from an article published in a Minneapolis newspaper:

There no longer is misrepresentation, but the elements of "sham" and optical illusion are still present, and not even the glass manufacturer pretends they are not. In fact, he makes a definite point of it. Here are some sample descriptions in the catalog of one manufacturer:

"* * *," pride of all glasses. Thin-blown, heavy sham-bottom crystal glasses. Appears two ounces larger than other heights. The ideal glass for beer service.

The "* * *," a concave heavy sham-bottom, thin-blown glass. Has very fine quality appearance. Looks extra big because of its heavy bottom.

New tall whiskey glass. A fine quality thin-blown clear crystal glass with triple sham-bottom. Looks exceptionally large, but holds only regular whisky serving.

Popular whisky glass, heavy pressed. Wide, high-cut flutes shammed, looks large.

The "* * *" beer mug is made of best-quality glass, full finished with extra-heavy bottom. Large strong handle. Looks large for its capacity.

Deluxe beer stein, made of best quality glass, finely finished with smooth top and bottom. Has a large, strong handle. Shammed to make it appear large for its capacity.

And so on and on—for the brimming glass or mug that slides across the bar.

The eyes see a lot more than the mouth receives. And if the psychologists took to drinking, what a lot of deductions they could make on optico-mental illusions—deductions with what a powerful kick.

Inasmuch as some glass manufacturers do not hestitate to come out and print phony descriptions in the catalogs and to educate the dealers how to sham and pretend, I think it is high time we adopt the Committee's report.

Mr. TOURTELLOT. Mr. Chairman, I would regard it as a cooperative act if my friend who has just spoken would let me have a sample of the can of which mention was just made, so that we can run down and stop anything of that nature. I have just completed an investigation that I thought was thorough, of the manufacture of oyster cans all over the country, and I am not aware of any such condition as he cites. But if it exists, I promise you it will be rectified.

Mr. KANZER. I want to put myself on record as approving and commending the report. On the basis of what we heard Mr. Campbell say there need be no hesitation with reference to the capacity basis for liquids; this opened the door completely for 100-percent approval for standard containers for liquids. My friend Joe Rogers thinks that there are considerations which might make us hesitate with reference to the weight basis. However, this motion distinctly provides that the Committee will further confer with the industry. The principle is correct and the report is correct, and I think it should be adopted.

(The question was taken and the motion was agreed to.)

(At this point, at 5:10 p. m., the Conference adjourned to meet at 9:30 a. m., Friday, June 9, 1939.)

SEVENTH SESSION—MORNING OF FRIDAY, JUNE 9, 1939

(The Conference reassembled at 9:54 a. m., at the Washington Hotel; Charles C. Read, Vice President of the Conference, in the chair.)

SUPPLEMENTAL REPORT OF COMMITTEE ON SPECIFICATIONS AND TOLERANCES, PRESENTED BY JOHN P. McBRIDE, AND DISCUSSION THEREON

At the session on Wednesday morning, there was referred back to your Committee, Specification No. 5 under the heading "Vehicle Tanks," with instructions that your Committee give this matter further consideration and report back a revised wording this morning.

Accordingly, your Committee has reviewed the matter and now recommends for adoption by the Conference the following:

5. Fill Openings and Indicators.—The fill opening shall be of such size that it can readily be determined whether or not the compartment has been properly filled or completely emptied, as the case may be, and that the attachment of the seal can be readily accomplished when such sealing is required by the terms of this specification: *Provided, however, That if the fill opening is circular its effective diameter shall in no case be less than 7⅝ inches, or if other than circular, it shall have an effective area of not less than 45 square inches.* An indicator shall be provided within the fill opening of each compartment; *this indicator shall be permanently attached* and shall be located approximately midway between the ends of the compartment. The indicator shall be so designed that it will clearly, distinctly, and unmistakably define the height to which the compartment must be filled in order to contain its marked capacity, *and the change in height of the liquid surface at the index of the indicator equivalent to the volume representing the tolerance on the compartment capacity, shall in no case be less than 0.04 inch.* An adjustable indicator and any removable part to which any indicator may be attached shall be so constructed that it or they can be sealed in place in such a manner that their position cannot be changed or that they cannot be removed without destroying or mutilating the seal or seals.

(Signed) F. S. Holbrook, *chairman,*
Charles M. Fuller,
Joseph G. Rogers,
John P. McBride,
George F. Austin, Jr.,
Committee on Specifications and Tolerances.

Mr. McBride. The present proposal changes the minimum effective diameter of the fill opening to 7⅝ inches (nominal 8 inches) and provides for an effective area of not less than 45 inches in the case of an opening which is other than circular. The provision contained in the original recommendation in regard to the additional indicator has been deleted. We feel that this is a matter which might bear further investigation.

Mr. Rogers. I move the adoption of the report.

(The motion was seconded.)

Mr. Crockett. If the Conference will bear with me, I would like to read from a letter which I have just received from my Chief, S. T. Griffith, as follows: [Reading:]

Mr. Chairman and members of the Conference: There is one thing in weights and measures work which I am certain that everyone is 100 percent agreed on, and that is this: The first and prime duty of everyone is to provide facilities for the detection of the perpetration of fraud, and that is the basic foundation of all weights and measures work and in everything that we do.

Now, then, you will understand that no aspersions are cast on any company or manufacturer, and no personalities are affected, but I ask you what size opening looks best, and as a weights and measures official doing his work, I ask you which looks best, the large 10-inch opening or the small 5⅝-inch? Everyone who has worked in calibration of compartments of tank trucks—and the average number is four to each truck—will surely agree that it is almost always necessary to use both hands to seal the markers properly and accurately. Which opening will permit proper inspection, the little opening or the 10-inch?

Gentlemen, there is no reason that we should change the 10-inch minimum specification. It is not retroactive as of last year; the old trucks were calibrated and used before the effective date of last year, and they are passed and in use. The effective date was September 1 of last year. The tank-truck manufacturers have been making 10-inch openings since last year, and there are no extra costs involved, and everyone seems to be happy now.

Why change something good for something bad? Don't make a step backward; keep on progressing. The 10-inch minimum-fill opening is an established fact and fair.

Gentlemen, Captain Griffith asks you to defeat the little 5⅝-inch opening, and I urge you to vote "no change," please.

Mr. McBride. May I make it clear that the Committee has recommended that the minimum-fill opening be 7⅝ inches; the Captain is discussing the 5⅝-inch opening.

Mr. Crockett. I understand that, and of course he did not know what the recommendation of the Committee was going to be, but, gentlemen, we showed you the two pieces of cardboard up at the National Bureau of Standards, and would any of you gentlemen here suggest for a 1,500-gallon truck using bunker steel, an 8-inch opening? How is the man going to inspect the inside of that tank truck, as we do in Baltimore? Bricks and cans and so forth can be inserted and taken out at will by a piece of wire. As the Captain said, this is not retroactive, and how many of you gentlemen have seen a new tank truck with a 5⅝-inch opening since this went into effect?

Mr. Fuller. We have seen quite a few; I am referring to the small compartments.

Mr. Crockett. I cast no aspersions on anybody, especially the Committee, who has done wonderful work in the past. They have brought out some wordings that I have studied for 2 weeks, and I still don't know much more about them than when I started. But I do know something about them as a general thing, and they have done wonderful work.

Has that part of the original amendment proposed been deleted, which read, "This specification is not to be construed to prohibit the installation of an additional indicator," etc.?

Mr. McBride. That has been deleted.

Mr. Crockett. I have changed my mind on that. This double indicator has got to come. If you put a double indicator in a compartment with an 8-inch opening, how are you going to get down to seal it?

Now, I am talking of the things that come to us in the city of Baltimore. Many of the oil companies have found that the 10-inch opening facilitated their work of loading so much that they have gone to it voluntarily without any request on our part—that was prior to the effective date of enforcement. We have found it good, and why should we take a step backward, which I really think personally this present proposal is?

I can show you scars and cuts on my hands where the screw thread at the bottom has gashed or nicked them. I am speaking for the

man in the field who has done this work in all kinds of weather—rain, snow, hail, sunshine, heat, and cold—and I positively know that you can do better work with a 10-inch opening than with any other opening of a smaller size.

Mr. JENSEN. I would like to inform this Conference that the company which is the predominant manufacturer of tanks in the entire Northwest, has been manufacturing their tanks in the last 2 years with the 10-inch opening, voluntarily complying with the recommendations of the North Dakota, Minnesota, and Wisconsin departments, and others. That is also true in other western States. We are glad to get away from the smaller openings.

Mr. FULLER. I merely wish to submit that we have eliminated that small size which you considered objectional, and that we have met the proposition by what I believe is a happy compromise, which is the true spirit of Democracy. We don't say that we shall have an 8-inch or a 10-inch opening; we say that it shall not be less than 8 inches in diameter. We have some tank wagons with small compartments, and it would be impossible to equip them with 10-inch openings.

Mr. DAVIS. I have an objection to reducing the size of openings in tank trucks. I think now that a 10-inch opening is small enough. However, for the sake of harmony, I am very willing to give in to the ideas of this Committee, who I know have labored hard and long on it. I am going to favor the report of the Committee.

Mr. MCBRIDE. If I may, gentlemen, I would like to suggest that it is required by this specification that the fill-opening shall be of such size that it can be readily determined whether or not the compartment has been properly filled or completely emptied, and that the attachment of the seal can be readily accomplished. Those conditions must prevail. A 10-inch opening is possible, or a larger opening is possible, according to the exigencies of the situation, as it presents itself. This is only a specified minimum.

Mr. KANZER. I will take the word of the Committee that that is the correct solution; I will not gainsay the size of the opening. I assume that it will be all right, and I am not interested in that at this time. But I am interested in the wording with reference to determining the change in the height of the liquid surface at the index of the indicator, equivalent to the volume representing the tolerance on the compartment, which shall in no case be less than 0.04 inch.

I am not an expert on the other part, but I think that I can claim some little experience and knowledge on this, since I don't know anybody in this room or elsewhere who can determine this variation of 0.04 of an inch in that opening. This requires the use by the inspector of a steel scale. I don't know of any wooden or any other type of scale that he can use. I don't think it is necessary to equip him with that scale; I think it is absurd. In the ultimate sense it will be a case of using his own judgment as to whether the change is distinguishable by him. If it is discernible by him, it makes no difference if it is 0.04 of an inch, or any other fraction. The important part is whether he can determine compliance with tolerance. We should not saddle upon him the job of determining 0.04 of an inch up there on top of that tank.

Mr. RAGLAND. A few years ago, I offered the amendment for a 10-inch opening, which was adopted. After going home I was called by

a Richmond engineer to look at a tank, and I observed that the full opening was 8 inches in diameter; the specification said that it should be 10 inches. I went to the city attorney, and I stated the case to him. He asked me, "Can you clearly and unmistakably determine the height of the surface of the liquid?" I said "Yes," and he said, "I will tell you, we won't go to court with such evidence as that. You can see everything that you need to in an 8-inch opening." So I went to my office and wrote each member of the department a letter, and I stated that I couldn't enforce this in my State. I have talked to the judges (some of them in our city courts are schoolmates of mine) and I am convinced that you can't go into any court that I know of down our way and enforce a 10-inch fill opening. I have been thoroughly convinced by good, sound arguments that an 8-inch opening is sufficient to accomplish our purpose. If my good friend in Baltimore can't see into that tank properly, condemn it. That is the trouble with us—we have got to do a thing, and for some political or other reason we are scared to do it. We are not here to protect knuckles; we are here to protect the public; to be fair with the manufacturer.

Mr. Engelhard. It seems to me that we have come a long way on a compromise when we come from 5⅝ inches to 7⅝ inches, which is practically an 8-inch opening. It certainly does give plenty of room for a man to put two hands into the fill opening to seal it, and it certainly is sufficient to disclose whether the liquid has been completely emptied and whether the tank has been filled up to the indicator.

We in New Jersey know how to figure 0.04 of an inch. For the benefit of some who don't know what 0.04 inch means, or who only have a foot rule or other crude equipment to work with, maybe it might be a little simpler to call it a sixteenth, which is 0.0625 in.

Mr. Crockett. Mr. Chairman, I was not trying to create sympathy when I spoke about my hands; I wanted to facilitate the work of the inspector. I guess that we are all working on a reduced budget and have a reduced staff. Why not make it as easy as we possibly can, for a man doing the work? Most of the specifications and tolerances that have been adopted by this Conference are clear-cut and concise and don't straddle one way or the other. I call this a straddle; it puts it up to the man doing the work whether or not the opening is large enough.

Mr. Ragland. It is immaterial to me whether any member of this Conference considers that I am straddling. I have come to a firm, definite understanding. If I have been misled, it is by some of my friends at home and not by members of the Conference. If I make a mistake I come back and tell you that I made a mistake.

Mr. Kanzer. I want to make an amendment to eliminate the part that says 0.04 of an inch, and to substitute the words "shall be readily discernible."

The Acting Chairman. Apparently the motion is not seconded.

(The specification as proposed by the Committee was duly adopted.)

REPORT OF COMMITTEE ON SPECIFICATIONS AND TOLERANCES, PRESENTED BY JOHN P. McBRIDE, AND DISCUSSION THEREON—Continued

Mr. McBride. When the discussion of the report of the Committee on Specifications and Tolerances was interrupted on Wednes-

day morning, there had been read and explained all of the detailed recommendations of the Committee for amendments to the several codes. As the matter terminated, no vote was taken on the amendments proposed to specifications in relation to scales, and the matter was held to give the delegates a further opportunity to study the recommendations.

As I understand it, I am expected to wait for a vote on the material which was read on Wednesday, or for any discussion you may desire to have in relation to it. The remainder of the report is general in its nature.

(The detailed recommendations of the Committee were duly adopted.)

Mr. McBride. Now, gentlemen, we will continue with the presentation of the report. [Reading:]

GENERAL RESTATEMENT OF TOLERANCES FOR LARGE-CAPACITY SCALES

In view of statements made from time to time by some weights and measures officials that in regard to tolerances, especially for large-capacity scales, the statement was not as simple as might be, and that as a result the tolerances were not readily understandable, your Committee has been giving consideration to methods by which this condition might be rectified. It may be said in relation to the present statement that the committee endeavored to present the material in the smallest possible compass consistent with a full statement of requirements. While such a method appeared to be a desirable one, nevertheless if it results in any uncertainty as to what the requirements are, it fails of its purpose, since obviously clarity is the sine qua non of regulations. In the present presentation large-capacity scales of all types have been included in one class, since the basic tolerances for all of them are the same. These general basic tolerances have first been stated, following which necessary qualifications for special types have been incorporated in provisos. Your Committee has come to the conclusion that by sacrificing brevity, and by breaking down this general class of scales into several subdivisions, a more readily understandable statement of tolerances could be made.

Time has not been available as yet for your committee to do more than outline the method. On numerous occasions in the past the Conference has seen fit to entrust your Committee with the authority to revise the language of specifications and tolerances without changing their meaning or effect. If the Conference sees fit again to do this in relation to tolerances for large-capacity scales, the Committee will be prepared to carry out the project outlined above. In this event your Committee would be able to place this revision in your hands, shortly after the adjournment of this meeting, in the form of revision sheets to Handbook H22. In this way approximately a year could be saved, since the Committee otherwise would not be able to bring in the material before the next annual meeting of the Conference. In view of the number of States which are currently inaugurating large-capacity scale work, this saving of time seems to be especially important.

(The Committee was duly authorized to revise the language in question.)

Mr. McBride (reading):

VEHICLE-SCALE TOLERANCES

Your Committee on Specifications and Tolerances has carefully reviewed the present Conference tolerance for vehicle scales. As a result of this review your Committee gives its opinion that the tolerances as adopted at the Twenty-seventh Conference in 1937, and continued in force after exhaustive discussion at the Twenty-eighth Conference in 1938, are entirely satisfactory and should be continued in force and effect without amendment.

Your Committee considers that it is unnecessary again to go into detail as to the reasons which dictate this decision. The arguments were set forth in great detail last year and we believe that they are entirely valid. In brief, it is believed that the present tolerances will not result in passing scales which should be condemned for inaccuracy; on the other hand, it has been demonstrated that were the tolerances amended in the manner which has been proposed, scales would

be listed as inaccurate and condemned which are entirely satisfactory from the standpoint of accuracy, and consequently owners of such scales would be unjustly treated and subjected to unnecessary expense.

Your Committee has had access to the comprehensive results procured by the National Bureau of Standards in its present investigation of the condition of vehicle scales throughout the United States. We think that these results amply bear out the above conclusions.

The weights and measures official should not be put into the position of being forced to condemn scales which are amply accurate for commercial use.

You will remember that the opponents of the present tolerance were given a full hearing last year both by your Committee on Specifications and Tolerances and by the Conference itself. As a result of this discussion, your Committee recommended to the Twenty-eighth Conference a modification which made the tolerances more rigid and which, in its best judgment, effectively disposed of the arguments advanced; this recommendation was adopted by the Conference. The modification consisted in inserting in the code a new definition to be known as A–2q, "New Scales." By its terms, scales which have been reconditioned or overhauled, or which have been condemned for repairs by a weights and measures official and subsequently adjusted or repaired shall, upon the first test thereafter, be construed to be "new" scales for the purpose of application of tolerances. This modification resulted in a reduction of tolerances on the scales in question by a minimum of 50 percent and by 75 percent in individual instances. Your Committee believes that this action on the part of the Conference will undoubtedly require competent jobs of reconditioning, overhauling, repair, and adjustment, and will effectively prohibit inexpert or careless workmanship on the part of scale mechanics and scale shops; thus it is felt that this amendment has effectively disposed of any valid objections to the tolerances for vehicle scales.

One thing should be said about the situation, however, to clear up a misunderstanding which may exist. Some of you may have formed the opinion that the railroads do not approve of the present tolerance on corners adopted by the National Conference. The fact is that this theory cannot be supported. The contrary is the case.

Tolerances on scales for railroad use are formulated by the subcommittee on Scales of the Yards and Terminals Committee of the American Railway Engineering Association; the recommendations of this subcommittee are reported to the full committee and, if found satisfactory, are published in a bulletin and circulated to the membership of the AREA and other properly interested parties. They are then referred to the AREA in convention for formal action thereon. When approved by the AREA they are referred to the General Committee, Engineering Division, AAR, and, if found to be proper, they may be eventually officially adopted by the Association of American Railroads as such. They are then published in the "Manual," which is a publication under the joint sponsorship of the American Railway Engineering Association and of the Construction and Maintenance Section of the Association of American Railroads.

Shortly after the revision of the tolerances for vehicle scales at the Twenty-seventh National Conference on Weights and Measures, the subcommittee (of the Yards and Terminals Committee) on scales revised their tolerances to agree with the Conference action. This amendment has now gone through all the steps outlined above. It has been incorporated in the Manual of Railway Engineering and constitutes chapter 14, section 55, "Large-Capacity Scales—Tolerances, SR Requirements, and Regulations 1938", pages 14–107. The result is that the Conference tolerances and the AAR tolerances on scales in service and newly reconditioned scales, are now in accord.

Your Committee strongly recommends that the Conference avoid any action which will upset this very desirable uniformity and that the present tolerances on vehicle scales be continued in force and effect.

SINGLE-SERVICE MEASURE CONTAINERS

Your Committee has given some consideration to the preparation of a code of specifications and tolerances on single-service measure containers, but time has not as yet been available for drafting a code for presentation to the Conference. A code on this subject will be brought forward for consideration at the next meeting of the Conference.

That, gentlemen, concludes the report of the Committee.

Mr. O'Keefe. I move that the report of the Committee be adopted as a whole.

(The motion was seconded, the question was taken, and the motion was agreed to.)

Mr. Crockett. Are copies of this amendment to Specification No. 5 for "Vehicle Tanks" available?

Mr. Holbrook. That will be out, probably within a week, and copies will be mailed to all of the delegates.

ABSTRACTS OF STATE REPORTS [1]

ALABAMA

By R. M. Johnson, *Chief Inspector of Weights and Measures, City of Birmingham*

Mr. Johnson expressed regret that the State department was not represented and that he was unable to make a report for the State. He stated that in his city the weights and measures officials were protected by civil service rules and that weights and measures conditions were very satisfactory; especially was this the case in relation to gasoline-measuring equipment and gasoline deliveries.

CALIFORNIA

By C. E. Tucker, *Chief, State Division of Weights and Measures*

Mr. Tucker stated that during the year there had been enacted in code form all of the State statutes relative to weights and measures; only three substantive changes were included, namely, to cover conduct of a sealer before a trial board, to eliminate two-draft vehicle weighing, and to require the sale of meat by weight. He also stated that a new law relative to deceptive containers [2] was a most constructive and popular statute.

CONNECTICUT

By C. L. Klocker, *State Inspector of Weights and Measures*

Mr. Klocker reported the passage of a law reducing the tolerance on a ton of coal from 20 pounds to 5 pounds, a requirement believed to be rather severe. Large shortages had been discovered in the weight of meat delivered by the wholesaler to the retailer. A bill was introduced providing that all meat be sold by net weight at the time of sale; this bill failed of passage.

FLORIDA

By Howard E. Crawford, *Inspector of Weights and Measures, City of Jacksonville*

Mr. Crawford reported that no effort had been made at the last session of the legislature to secure the passage of legislation providing for a State-wide inspection of weights and measures; thus the State still has no satisfactory law. However, he said that inspection work was being actively prosecuted in his own city, Jacksonville, as well as in the cities of Miami, St. Petersburg, and Tampa.

[1] For convenience of reference these reports have been assembled and arranged in alphabetic order.
[2] See p. 9.

GEORGIA

By S. H. Wilson, *State Oil Chemist*

Mr. Wilson reported that while a bill requiring State-wide inspection of weights and measures had failed of enactment in his State, a preliminary survey of conditions existing had recently been conducted. He described the progress being made in Atlanta by Mr. Reed, Inspector of Weights and Measures, who had been successful in securing the passage of satisfactory city ordinances and was building up a splendid local department.

ILLINOIS

By John J. Levitt, *State Superintendent of Standards*

Mr. Levitt reported that due to success which had attended the operation of the large-capacity scale testing unit procured about 2 years ago, a new unit identical with the one in service was now being provided. He said that an increase of $43,000 in appropriations was also making it possible to employ six additional weights and measures investigators. The State handles all inspections except in cities of 25,000 or more.

INDIANA

By Rollin E. Meek, *Chief, State Bureau of Weights and Measures*

Mr. Meek reported that following the work done in his State by the National Bureau of Standards Vehicle-Scale Testing Unit, funds had been secured for the purchase of a test truck equipped with 10,000 pounds of weights for the more adequate testing of vehicle scales. He said that several bills introduced in the legislature, one of which would have provided for the standardization of packages, had failed of passage.

MAINE

By James A. Boyle, *Sealer of Weights and Measures, City of Portland*

Mr. Boyle reported the passage of a law standardizing the number of cubic feet in "loads of fitted wood." He said that much butter had been found to be short in weight, it being said that this was due to lack of proper refrigeration; this difficulty was now corrected. Sugar in paper sacks was also frequently found short this being variously attributed to improper packaging machinery, shrinkage, and rough handling.

MARYLAND

By Charles G. Crockett, *Inspector of Weights and Measures, City of Baltimore*

Mr. Crockett stated that there was very little weights and measures activity throughout the State as a whole; the report of a commission appointed to make a survey of weights and measures had not as yet been made public. In Baltimore a program of consumer education had been carried on, and demonstrations and lectures in relation to weights and measures had been given before various organizations and in the schools.

MASSACHUSETTS

By John P. McBride, *State Director of Standards*

Mr. McBride reported the passage of legislation which merged with his Division, the Division of Necessaries of Life, having control of

food, fuel, and shelter. Another law enacted established a barrel of 31 gallons for malt beverages. He said that meat packers had voluntarily agreed to discontinue a former practice of including in billed weights the weight of wrappings and skewers. The question of shrinkage was still unsolved.

MICHIGAN

By George F. Austin, Jr., *Supervising Inspector of Weights and Measures, City of Detroit*

Mr. Austin was not prepared to report for the State, but announced that a recent turnover in the staff of the State Department of Agriculture doubtless was responsible in part for the absence of a representative of the State; however, four cities had officials in attendance. He said that Glenn Davis was the new Director of the Bureau of Foods and Standards.

MINNESOTA

By Russell S. Ackerman, *Superintendent, Department of Licenses, Weights and Measures, City of Minneapolis*

Mr. Ackerman stated that he was unable to report for the State, but announced that Erling Hansen had recently been appointed Supervisor of the State Department of Weights and Measures. He reported that the results of one investigation made in Minneapolis had disclosed that herring, packed in 3½-pound pails, contained ¾ pound of vinegar and onions. This was believed to be an unreasonable percentage and the matter had been corrected.

MISSOURI

By Louis G. Waldman, *Commissioner of Weights and Measures, City of St. Louis*

Mr. Waldman reported the passage of an ordinance in his city codifying existing weights and measures laws and adding several important sections relating to the net weight of package goods, the elimination of counter scales having manually adjustable balancing devices, the extension of the power of confiscation of false apparatus, and the regulation of vehicle tanks. He stated that the procurement of an adequate vehicle-scale testing equipment was under consideration.

NEVADA

By J. M. McLeod, *State Inspector of Weights and Measures*

Mr. McLeod reported that during the last year additional equipment had been procured, notably a 50-gallon testing unit for the inspection of vehicle-tank compartments and meters, and a light truck carrying a number of 500-pound weights for the more efficient test of vehicle scales. He expressed the regrets of S. C. Dinsmore, State Sealer, who, on account of urgent matters, was unable to be present.

NEW JERSEY

By Charles C. Read, *State Superintendent of Weights and Measures* [3]

Mr. Read reported the passage of a law providing for the pension and retirement of county weights and measures officials and outlined

[3] This report was presented to the Conference by Joseph G. Rogers.

other features of the legislative program. He described several regulations which had been adopted providing for the obsolescence of certain liquid-measuring devices, for the regulation of weighmasters, for the recognition of the Northwestern apple box, and for limiting weights of loads on wagon scales.

NEW YORK

By Barnett Kanzer, *Director, State Bureau of Weights and Measures*

Mr. Kanzer reported great success in securing the enactment of his legislative program; a bill designed to eliminate weaknesses in the general law of the State was passed, as were specific laws relative to the sale of ice cream and to the standardization of beer barrels. He said that, by agreements, reforms had been brought about in the methods of sale of meat by the wholesaler, and the sale of package goods, and of twine and cordage.

NORTH CAROLINA

By C. D. Baucom, *State Superintendent of Weights and Measures*

Mr. Baucom reported that during the year a new 10-ton test truck for the test of vehicle scales had been put into service; this was operating very successfully and was unable to keep up with the requests being made for tests. Another important piece of equipment procured was a 1,000-gallon portable test tank for the testing of large-capacity meters. He reported the passage of a weighmaster act.

NORTH DAKOTA

By A. J. Jensen, *Chief State Inspector of Weights and Measures*

Mr. Jensen reported the formation of a board to draw up a legislative program. It was decided to increase the fees charged for the testing of apparatus, to provide a fund to be utilized in the purchase of new apparatus and the employment of additional inspectors. The bill failed of passage. He advocated the inauguration of a national weights and measures radio program, which he thought would do much to popularize the work.

OHIO

By J. C. Tinkey, *Chief Deputy State Sealer*

Mr. Tinkey reported that a recent law requiring the testing of livestock scales four times a year was now being enforced by the weights and measures officials with excellent results. He also mentioned a new regulation requiring the sale of dressed meat and meat products, poultry, and fish upon a basis of weight, and of all other commodities upon a basis of weight, measure, or count.

TEXAS

By W. S. Bussey, *Chief, State Weights and Measures Division*

Mr. Bussey stated that the Division had procured a 100-gallon test measure for the testing of wholesale meters; a portable cotton-reweighing outfit had also been secured and put into use, and this had proved to be of such great value to the cotton farmers that it

was decided to purchase a second one to handle the situation adequately. He reported the creation of a new city department in Waco.

VERMONT

By H. N. Davis, *Deputy State Commissioner of Weights and Measures*

Mr. Davis reported an appropriation for the purchase of an adequate vehicle-scale testing equipment. He said that the results of inspections of vehicle scales made in the State by the National Bureau of Standards had made it possible to secure this. He reported amendments to the coal law allowing loads to be weighed in adjoining States under certain conditions, and to the law relating to the scaling of logs, recognizing both the International and the Vermont rules.

VIRGINIA

By M. A. Hubbard, *State Supervisor of Weights and Measures*

Mr. Hubbard reported that the Division had procured an additional 5,000 pounds of test weights to the end that vehicle scales might be more adequately tested. He also said that the weights and measures schools, sponsored by the League of Virginia Municipalities and held annually, had done much toward arousing interest, improving conditions, and bringing about a more uniform interpretation and application of requirements throughout the State.

WEST VIRGINIA

By S. M. Miller, *State Scale Inspector*

Mr. Miller announced with the deepest regret the recent death of C. L. Jarrett, State Commissioner of Weights and Measures. He reported the condition of vehicle scales found by the National Bureau of Standards testing unit and noted greatly improved conditions resulting, since many scales had been replaced, overhauled, or their use abandoned. Efforts were being made to procure an adequate State-owned vehicle-scale testing equipment.

WISCONSIN

By Louis E. Witt, *Sealer of Weights and Measures, City of Milwaukee*

Mr. Witt said that he was not in a position to report for the State, but that an impression that seemed to exist among members of the Conference that George Warner was no longer Chief State Inspector of Weights and Measures was not correct. Reorganization legislation had at one time resulted in his transfer to another department, but this action had been rescinded and the work was functioning as heretofore.

NEW YORK CITY[4]

By Alex Pisciotta, *Director, Bureau of Weights and Measures, City of New York*

Mr. Pisciotta reported that he had found it very helpful in the solution of problems to hold frequent conferences with weights and measures officials of his own and adjoining States, since, when a consensus was reached upon matters affecting industry, it would then be

[4] Mr. Pisciotta made this report at the invitation of the Acting Chairman.

apparent that the decision was concurred in by several jurisdictions and was not that of New York City alone.

SECRETARY'S NOTE.—During the presentation of the State reports B. W. Ragland, Vice President of the Conference, assumed the chair.

REPORTS OF REPRESENTATIVES OF STATE ASSOCIATIONS OF WEIGHTS AND MEASURES OFFICIALS

At this point brief reports of the activities of State associations were presented as follows:

California Sealers' Association, Charles M. Fuller, Sealer of Weights and Measures, Los Angeles County.

Indiana Association of Inspectors of Weights and Measures, A. Edward Snyder, Inspector of Weights and Measures, city of Terre Haute.

Massachusetts Association of Sealers of Weights and Measures, William Bradley, State Inspector of Standards.

New Jersey Association of Weights and Measures, Joseph G. Rogers, Assistant State Superintendent of Weights and Measures.

Texas Weights and Measures Association, R. L. Fullen, Chief, Division of Weights and Measures, city of Dallas.

Virginia Weights and Measures Association, B. W. Ragland, Chief, Bureau of Weights and Measures, city of Richmond.

(At this point Howard E. Crawford, Vice President of the Conference, assumed the chair.)

MOTION TO RECONSIDER ADOPTION OF RECOMMENDATION OF COMMITTEE ON SPECIFICATIONS AND TOLERANCES IN RELATION TO TOLERANCES FOR VEHICLE SCALES

Mr. BUSSEY. In considering the report of the Committee on Specifications and Tolerances this morning, we adopted a recommendation of the Committee by instructing them to reword the section on tolerances for large-capacity scales. At the same time we adopted the recommendations of the Committee that the present tolerances on vehicle scales be continued in force and effect.

It appears to me that since the Committee is to redraft the wording of the tolerances for large-capacity scales, including vehicle scales, this matter should be given serious consideration and it should be put in a form that will be acceptable to a large majority of jurisdictions over the country. There are certain provisions in the tolerances that are not acceptable, and never will be acceptable, to many jurisdictions. Therefore, I would like at this time to move that we reconsider our action on that portion of the Committee report, which refers to tolerances on vehicle scales.

(The motion was seconded.)

Mr. J. G. ROGERS. Of all the steam-roller politics I have ever seen here, this is the limit. This is certainly no time to bring up that subject for reconsideration. These men know it. You had your opportunity here this morning when that came before us, and we anticipated that there would be discussion on it. It seems to have become highly controversial, and in view of that, I believe that every member of this Conference should have an opportunity to listen to the discussion and to vote upon it. In a sense of fairness to the delegates

who have had to return home, we should certainly not consider this now.

Personally, I think it is a tempest in a teapot, for the reason that there is no increase in the tolerances. The men who have been sold on the idea, possible do not understand it; they have not given it study to find out whether there is anything dangerous in it.

There is nothing dangerous in it, otherwise I can assure you that the State of New Jersey would not back it. We have just spent a lot of time and labor going over the heavy-scale situation. You have got flexibility in what the Committee proposes, and you are not increasing your two-tenths of 1 percent on the end of the scales. You are just liberalizing to the extent that you will allow a four-tenths of 1 percent error on one corner of a vehicle scale, when the opposite corner has such an error that the regular tolerance on the end is not exceeded. Certainly we must consider the practical application of the test methods that are applied by weights and measures officials.

I have known the weights and measures fraternity in the many years during which I have been affiliated with it, and it has always had the characteristic of using common sense. We certainly have never been putting ourselves in the position of being a nuisance to merchants and those people whom we have to go out and regulate. Now, this thing that you want to do is just simply definitely placing a penalty on a man whose scale may be all right.

The trouble of it is that it has become beclouded with a lot of insidious propaganda—that is about all it amounts to—and there may be subtle purposes in back of it. I am positively and emphatically opposed to a reconsideration of this subject at this particular time. If you gentlemen want to bring this up again next year, all well and good, but this is no time to do it in the absence of so many of our delegates.

Mr. Austin. This brings out what I had to say in my remarks on Tuesday, when I warned this body about insidious propaganda and unfair tactics. This matter is being brought up by a very small minority of our organization, backed by a body of scale inspectors and repairmen.

Mr. Baucom. I do not know what the proposed amendment is. We are arguing and discussing something that has been adopted. The introducer of this motion may offer an amendment or he may not—I have not seen anything of the kind. I merely ask that it be reopened. I do not know whether we would object to the amendment or not, but I think that we ought to see what it is that he proposes.

Mr. McBride. I think that above everything else we should be honest. The report of the Committee was presented in detail, and there was no haste, certainly by me; I waited for discussion when the matter was presented and none came. I don't know what the strategy is, but certainly these gentlemen who propose this reconsideration waited until some of the fellows had gone home. Whatever their proposition is, surely it cannot come before the whole body, and I hope that we will not vote for reconsideration.

Mr. Levitt. The reason that we did not bring it up before, when Mr. McBride read it, was that some of us who are interested in this proposition felt that we would put this in as a resolution. The body here authorized the Committee to rewrite those tolerances so that they could be intelligently read and intelligently interpreted. Our in-

tention is to incorporate an amendment, so that while you are rewriting it you can also include that.

Now, with reference to some remarks about a small minority. During this convention it has been said, at least by inference, that everybody is in favor of the present tolerances; I have heard different ones refer to that, and to the AREA. I do not know what the AREA is, and while I know it is the American Railway Engineering Association, I think that they represent a very small minority of the people interested in weighing. You never heard them say what the National Scale Men's Association thinks of it, and you have not heard any of them say what the Western Weighing and Inspection Bureau says about it. Those people feel as we do about it. I will be glad to put the proposition to your Committee this way—send out a questionnaire to every State official and every member of this organization, and let them answer it in writing; then be governed by the majority opinion. You can do that if you think that we are trying to put something over. No one is trying to put anything over, but I do not believe in increasing the tolerance to four-tenths, and I do not believe in camouflaging it so that you do not know what you are doing, and that is exactly the way it is written now. We brought this up last year, and we made a motion on the floor to refer it to the Committee, and I do not know whether they considered it or not.

Mr. Boyle. In fairness to the delegates who were here when the report was adopted and who have now gone home, thinking that this matter was settled, I move that the motion be laid on the table.

(The motion was seconded and the question was taken, by voice vote.)

The Acting Chairman. It is carried.

Mr. Levitt. I would like to have a roll-call vote on that motion.

The Acting Chairman. Let us have a standing vote; will that be satisfactory to you?

(The question was taken by standing vote, 26 voting in favor of the motion and 9 voting against it; thus the matter was laid upon the table.)

Mr. Pisciotta. May I now move that the suggestion of Mr. Levitt be followed, that the Committee send out a questionnaire, so that there will be no question about what the people in this Conference really want. We will have the answers long before the time of the next Conference next year.

(The motion was seconded, the question was taken, and the motion agreed to.)

Mr. Snyder. I do not think that there is anyone here who could have been more confused than I was in relation to these tolerances. I believe that if you men could get the picture that I have gotten, from talking to nearly everybody here, you would understand the tolerance as set up.

I am not inferring that I am any more intelligent than you gentlemen, but I am saying that only with an intelligent understanding can we inspectors out in the various cities and counties and States answer a questionnaire properly. I would be willing, if the gentlemen present want me to do so, to explain how I reached my conclusions and to explain the tolerances to you graphically on the board, since I feel that I do have an understanding that I did not have prior to this time. It is not a picture that cannot be understood. I wish that I knew whether you wanted me to go ahead.

The Acting Chairman. I am very much in sympathy with what you have suggested, but the program is dragging out and we will lose our audience if we do not get along here.

Mr. Twyford. I suggest that we have the report of the Nominating Committee.

(At this point, Lyman J. Briggs, President of the Conference, assumed the chair.)

The Chairman. If there is no objection, we will now have the report of the Committee on Nominations.

REPORT OF COMMITTEE ON NOMINATIONS, PRESENTED BY ROLLIN E. MEEK, CHAIRMAN, AND ELECTION OF OFFICERS

Mr. Chairman and members of the Conference, your Committee on Nominations desires to submit the following nominations:

For President, Dr. Lyman J. Briggs; Vice Presidents, H. N. Davis, A. J. Jensen, Charles C. Read, C. E. Tucker, James O'Keefe, Alex Pisciotta; Secretary, F. S. Holbrook; Treasurer, George F. Austin, Jr.

For members of the Executive Committee, the officers, ex officio, and the following: Russell S. Ackerman, C. D. Baucom, W. S. Bussey, Howard E. Crawford, S. T. Griffith, William A. Jones, C. L. Klocker, John P. McBride, Rollin E. Meek, W. P. Reed, George M. Roberts, Irvin R. Shultz, J. C. Tinkey, H. G. Twyford, Louis G. Waldman, Tom Webb.

(Signed) Rollin E. Meek, Indiana, *chairman.*
James A. Boyle, Portland, Maine.
J. C. Tinkey, Ohio.
L. G. Waldman, St. Louis, Mo.
Chas. C. Read, New Jersey.
M. A. Hubbard, Virginia.
Committee on Nominations.

(It was moved and seconded that the report be adopted, the question was taken, and the motion was agreed to. Accordingly, the gentlemen nominated by the Committee on Nominations were duly elected to the respective offices.)

REPORT OF COMMITTEE ON RESOLUTIONS, PRESENTED BY W. S. BUSSEY, CHAIRMAN, AND ADOPTION OF RESOLUTIONS

APPRECIATION TO DIRECTOR AND STAFF OF THE NATIONAL BUREAU OF STANDARDS

Whereas Dr. Lyman J. Briggs, F. S. Holbrook, R. W. Smith, and their able and efficient staff have extended valuable assistance and guidance to this Conference, of which the Conference is highly appreciative: Therefore be it

Resolved, That this, the Twenty-ninth National Conference on Weights and Measures, does hereby record its grateful appreciation to the above-named gentlemen.

APPRECIATION TO MANAGEMENT OF HEADQUARTERS HOTEL

Whereas the management of the Hotel Washington has done everything within its power to make our present meeting the success which it has been: Therefore be it

Resolved, That this, the Twenty-ninth National Conference on Weights and Measures assembled at the Hotel Washington this 9th day of June 1939, does express its warmest appreciation and thanks to the management of the said hotel for the careful provisions made for our meeting; and be it further

Resolved, That the secretary of the Conference be instructed to transmit a copy of this resolution to the management of the Hotel Washington.

APPRECIATION TO THE SCALE JOURNAL

Whereas the Scale Journal has been generous in carrying complete reports of preceding meetings of this Conference and also in giving advance notices of our present meeting: Therefore be it

Resolved, That this, the Twenty-ninth National Conference on Weights and Measures, does hereby record its appreciation to the Scale Journal.

APPRECIATION OF COOPERATION

Whereas the Standard Oil Co. of New Jersey has been generous in the displaying of the motion picture, "News in the Air": Therefore be it

Resolved, That the Twenty-ninth National Conference on Weights and Measures hereby records this expression of sincere thanks and appreciation for their cooperation, and to Mr. J. W. Saybolt for its introduction.

APPRECIATION TO OFFICIALS COOPERATING

Whereas the Governors and the county and city officials of the various States, through their manifest interest in weights and measures work, have made it possible for their respective jurisdictions to be represented at this, the Twenty-ninth National Conference on Weights and Measures; and

Whereas such cooperation and attendance have in a most practical way furthered uniformity in regulations for the various jurisdictions and have otherwise assisted the general good of the work; Therefore be it

Resolved, That this, the Twenty-ninth National Conference on Weights and Measures, does appreciate such practical cooperation and does make this resolution a part of the record of its meeting.

IN MEMORY OF C. J. P. CULLEN

Whereas during the past year we have lost through the plan of Divine Providence a very active member of this Conference, C. J. P. Cullen, who was past Vice President and a member of the Executive Committee of the Conference; and

Whereas our association with Mr. Cullen has been an inspiration to us and because of his absence from us we are deeply bereaved and will always be conscious of his helpful influence on all occasions. Men of his character have been exceptional in our field, and we will always be ever mindful of what he has contributed in our behalf: Therefore be it

Resolved, That we, of the Twenty-ninth National Conference on Weights and Measures, hereby record this expression of sincere sorrow at the loss of this member; and be it further

Resolved, That the secretary of the Conference be instructed to transmit a copy of this resolution to the family of Mr. Cullen.

IN MEMORY OF CLARENCE L. JARRETT

Whereas by the death of Clarence L. Jarrett, this National Conference on Weights and Measures has lost one of its valued members; and

Whereas our associations with Mr. Jarrett have always been most pleasant ones and we feel that in his passing we have lost a true friend: Therefore be it

Resolved, That we, of the Twenty-ninth National Conference on Weights and Measures, hereby record this expression of sincere sorrow at the loss of this member; and be it further

Resolved, That the Secretary of the Conference be instructed to transmit a copy of this resolution to the family of Mr. Jarrett.

IN MEMORY OF DECEASED MEMBERS

Whereas during the past year we have lost through the plan of Divine Providence several members of this Conference; and

Whereas our association with these departed members has been an inspiration to us to continue with greater determination toward the ideals set by them: Therefore be it

Resolved, That we, of the Twenty-ninth National Conference on Weights and Measures, hereby record this expression of sincere sorrow at the loss of these members.

APPROPRIATION FOR NATIONAL BUREAU OF STANDARDS

Whereas it is acknowledged that the National Bureau of Standards is a great contributing factor to efficient weights and measures law enforcement and consumer protection, and by its advice, counsel, and cooperation has become indispensable to this service, and that a great need exists to continue this cooperative service, particularly the travel features: Therefore be it

Resolved, That this Conference hereby expresses itself as desirous of these services and authorizes the Committee On Proposed Federal Legislation To Provide Assistance For The States In Administration Of Weights And Measures Laws to take appropriate action to secure for the National Bureau of Standards an appropriation sufficient to accomplish the aforesaid service of travel, of representation of the National Bureau of Standards at State meetings, of the travel of testing equipments, and of necessary research work.

REGRET AT ABSENCE OF CAPT. S. T. GRIFFITH

Whereas Capt. S. T. Griffith, Chief of the Bureau of Weights and Measures of Baltimore, Md., has been a regular attendant and faithful worker in this Conference for many years; and

Whereas ill health has prevented his presence upon this occasion: Therefore be it

Resolved, That we, of the Twenty-ninth National Conference on Weights and Measures express our sincere regret at Capt. Griffith's absence and our earnest hope for his speedy recovery; and be it further

Resolved, That this resolution be made a part of the record of this Conference and that a copy of same be forwarded to Capt. S. T. Griffith.

COMMITTEE ON PUBLICITY AND EDUCATION

Whereas we all recognize the value of publicity and education in weights and measures administrative work, and

Whereas it is apparent that some of the benefits of this important annual Weights and Measures Conference are lost as a result of not being publicized properly at the time of these annual meetings: Therefore, be it

Resolved, That we, the members of this Twenty-ninth National Conference on Weights and Measures in Washington assembled June 6, 1939, do adopt this resolution requesting the President of the Conference, Dr. Lyman J. Briggs, to appoint a Publicity and Educational Committee of not less than five members to serve during the coming year and to cover the next annual Conference; a particular duty of this Committee would be to receive, arrange, and disseminate to the members of the Conference, material which it may receive during the year as to radio and other educational work, and one member of such Committee will be selected from the Weights and Measures Division of the National Bureau of Standards.

(Signed) W. S. Bussey, Texas, *chairman*.
A. J. Jensen, North Dakota.
Tom Webb, Nashville, Tenn.
Mrs. Clark McQuilkin, East Chicago, Ind.
H. N. Davis, Vermont.
V. Bruschi, Jr., San Diego Co., Calif.
J. M. McLeod, Nevada.
Committee on Resolutions.

(The report as presented by the Committee was duly adopted.)

ESTABLISHMENT OF COMMITTEE ON LEGISLATION

Mr. Bussey. There is one other matter that was submitted to the chairman of the Committee on Resolutions, but too late for it to be considered by the Committee. My personal opinion is that it is of such an important nature that it would probably be a good idea to have it brought up from the floor, so I would like to ask Mr. Baucom and Mr. Pisciotta to explain this matter to you and submit it for your further consideration and action.

Mr. Baucom. We will try to present this real quickly. We know that there are many bills being introduced into Congress which authorize the Secretary of Agriculture to do certain types of weights and measures work. An example is a bill here, which provides that the Secretary of Agriculture shall promulgate such rules and regulations as may be necessary, shall establish tolerances, and so forth, and it gives him plenty of money to carry out the act. We feel that such work should be done in cooperation with the weights and measures departments, where such exist.

Now, I feel that in this particular bill it ought to be written that in carrying out the purposes of this act the Secretary of Agriculture is authorized to and shall cooperate with the State, county, and municipal weight and measure authorities. I just want it to be tied in definitely that he take it up with the weights and measures departments first, and then if he does not get the results that he wants, he can go ahead as he would naturally.

Mr. PISCIOTTA. My resolution is intended to cover questions of that kind. I will read the resolution. [Reading:]

Resolved, That a legislative committee of this Conference be appointed by the President of the Conference, for the purpose of keeping in close touch with all pending legislation as it is introduced in the Congress, which would affect in any manner the work and duties of the weights and measures officials throughout the country, and that this Committee procure copies of such bills to make a study of same, and to forward sufficient copies to members of this Conference with comments and recommendations, and to appear on behalf of this Conference at any hearings of the Committee on Coinage, Weights, and Measures of the Congress, and of other boards, departments, or bureaus, affecting the work of weights and measures.

I think we ought to have a committee of this Conference who will continually keep on the lookout for such bills, study them, and find out what they are all about, and send us copies of them with recommendations, so that we individually may do what we can through our own Congressmen to foster and to help the passage of these bills.

Another thing. We know from time to time that different industries go before various agencies and ask for increases in tolerances or some other such matter; when those things are done we ought to know that they are happening, and we ought to be in a position to appear, either in support of or in opposition to the proposals and do whatever is necessary for the proper maintenance of our weights and measures work.

I move the adoption of that resolution, Mr. President.

Mr. J. G. ROGERS. Mr. President, I would like to inquire whether that would in any way embarrass the National Bureau of Standards. We certainly do not want to put the Bureau on the spot in this situation, with the Secretary of Agriculture or anybody else. If it would not do so, I am perfectly willing to support that motion.

Mr. HOLBROOK. This resolution is for the appointment of a committee on legislative matters for this Conference, to watch bills introduced in Congress and take such action on its own account as it thinks best; is that correct?

Mr. PISCIOTTA. That is correct.

Mr. HOLBROOK. I do not see anything wrong with that.

Mr. J. G. ROGERS. I wanted that point clarified, because the committee will work as a part of the National Conference.

(The question was taken and the resolution was adopted.)

NEW BUSINESS

Mr. REED. I have a proposition that I would like to put before we adjourn. We all know the value of cooperation; I think that one of the most important things that this body could do would be to help the situation in States and cities that have no weights and measures officials. I think that one of the best ways to do that would be to educate the officials of those jurisdictions as to the value of our work. For instance, in Georgia, unfortunately, we do not have a State

weights and measures law. It strikes me if we could educate the proper officials down there, such a law might be enacted. Action was taken at the Southern Division of the National Scale Men's Association, to the end that the National Scale Men's Association send a representative to the United States Conference of Mayors, which meets here in Washington next May. Along this line I would like to move that this organization further weights and measures work by sending a speaker to the International City Managers' Association, which meets in Detroit, October 9 to 12. I think that if we educate the mayors and city managers on the value of our work, they in turn will have their effect upon the governors and the legislatures. The result might be that combined efforts might bring about the passage or improvement of State laws and city ordinances and increase our efficiency throughout the country.

The State of Georgia is being made the dumping ground of condemned scales. Last month one scale concern sent 57 scales into the city of Atlanta that had been condemned. We have no State law to prevent this. Fortunately, I stopped the practice in Atlanta. If we can interest these city managers and mayors, we might eventually get a State law in Georgia and in other States which are in a similar position.

I move you that this organization pay the expense of a speaker to appear before the International City Managers' Association in Detroit on October 9 to 12. We have a reported balance of some $500 in our treasury.

(The motion was seconded.)

Mr. Meek. I would certainly be favorable on any program that would educate the mayors or the city managers on the need of weights and measures.

Mr. Crockett. I agree that education is needed and we have in Maryland just as bad a situation as any other place. But if we begin this, we are starting raids upon our treasury to help particular sections, something which they should do themselves. Let the people clean their own houses. Why should we go and establish, or help to establish, a weights and measures department in Georgia, or in Maryland, or in any other section of the country? It is a bad precedent, I think, to pay expenses to do these things.

Mr. Reed. Let me say that I am not selfish in my motives. I have them headed off in Atlanta; I have all of the ordinances that I need. As far as I am concerned, you do not need to send anyone. But I want to help these other communities that don't have anything.

Mr. Fulton. I see no reason why this thing should not be done to educate the officials of our cities and towns over the United States. If we had a speaker at these conferences of city managers and mayors, why would not that be a good thing?

Mr. A. Edward Snyder. Why would it not be a good idea to pick out someone to speak who is located in the convention city and thus eliminate expenses? The meeting is going to be held at Detroit; we have men in Detroit who are competent to make a speech, to enlighten those men.

Mr. Reed. I think that that is a good point; I think that Mr. Austin would be a good man to do that.

(The question was taken and the motion was agreed to.)

Mr. HOLBROOK. In order to keep the record straight, may I inquire whether Mr. Austin is appointed the delegate by the terms of the motion?

Mr. REED. May I suggest that we leave that to the chairman?

The CHAIRMAN. That is all right.

REPORT OF THE TREASURER, GEORGE F. AUSTIN, JR.

			June 6, 1939
Balance on hand June 1, 1938			$499.41
Receipts:			
June 3, 1938.	Dues, 1938 Conference	$223.00	
June 3, 1938.	Accrued interest	7.49	
			230.49
Total receipts			$729.90
Disbursements:			
June 1, 1938.	Social evening, Hotel Washington— Refreshments	100.00	
	Music	10.00	
June 2, 1938.	Stenographic, mimeographing and messenger service	30.00	
June 2, 1938.	Telephone calls, cartage fees, and miscellaneous	5.00	
Total disbursements			145.00
Balance on hand June 1, 1939			584.90

Respectfully submitted.

(Signed) GEO. F. AUSTIN JR., *Treasurer.*

(The report as presented by the Treasurer was duly accepted.)

Mr. BAUCOM. I am sure that everyone would be glad to know how many States are represented and how many delegates are in attendance, if our Secretary has that information.

Mr. HOLBROOK. There are some 107 weights and measures officials registered at the Conference from 27 States and from the District of Columbia, and some 107 other registration cards are made out, making a total of about 214.

The CHAIRMAN. Gentlemen, before we adjourn, I would like to tell you how thoroughly we men in the National Bureau of Standards appreciate the efforts that you have all made to come and take part in this Conference. The expenditure of time and money on the part of some of you is great, but it is through these efforts and this devotion that we are making these annual Conferences a success.

I want also to say that I am very much gratified at what so many of you have reported regarding our vehicle-scale work. We have had the fullest cooperation from you from the very beginning, and the success attained is attributable to you as much as to our own group. We will go into the States that have not yet been covered just as fast as we can.

I look forward to seeing you all again next year.

(A motion was made and seconded that the Conference adjourn, the question was taken, and the motion was agreed to. Thereupon, at 1:15 p. m., the Twenty-ninth National Conference on Weights and Measures adjourned sine die.)

O