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U.S. DEPARTMENT OF COMMERCE/National Bureau of Standards

Report of the 61st National Conference on Weights and Measures 1976



NATIONAL BUREAU OF STANDARDS

The National Bureau of Standards¹ was established by an act of Congress March 3, 1901. The Bureau's overall goal is to strengthen and advance the Nation's science and technology and facilitate their effective application for public benefit. To this end, the Bureau conducts research and provides: (1) a basis for the Nation's physical measurement system, (2) scientific and technological services for industry and government, (3) a technical basis for equity in trade, and (4) technical services to promote public safety. The Bureau consists of the Institute for Basic Standards, the Institute for Materials Research, the Institute for Applied Technology, the Institute for Computer Sciences and Technology, the Office for Information Programs, and the Office of Experimental Technology Incentives Program.

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Office of Standard Reference Data — Office of Information Activities — Office of Technical Publications — Library — Office of International Standards — Office of International Relations.

¹ Headquarters and Laboratories at Gaithersburg, Maryland, unless otherwise noted; mailing address Washington, D.C. 20234.

² Located at Boulder, Colorado 80302.

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Report of the

61st National Conference on Weights and Measures 1976

*Sponsored by the National Bureau of Standards
Attended by Officials from the Various
States, Counties, and Cities, and
Representatives from U.S. Government,
Industry, and Consumer Organizations
Washington, D.C., July 12-16, 1976*

Report Editor: Patricia Ann Raschella



*United States Department of Commerce
Juanita M. Kreps, Secretary
National Bureau of Standards
Ernest Ambler, Acting Director*

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Abstract

This is a report of the proceedings (edited) of the Sixty-First National Conference on Weights and Measures, sponsored by the National Bureau of Standards, held in Washington, D.C., July 12-16, 1976, and attended by State, county, and city weights and measures officials, the Federal Government, business, industry, and consumer organizations.

Key words: Checking prepackaged commodities; computer assisted checkout systems; consumer affairs; cordage products; drained weight; laws and regulations; metrication; national laboratory accreditation; retail meat identity standards; tolerance application; vapor recovery; weights and measures.

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OFFICERS OF THE CONFERENCE

President: ERNEST AMBLER, Acting Director, National Bureau of Standards
Executive Secretary: H. F. WOLLIN, Chief, Office of Weights and Measures, National Bureau of Standards

Chairman: R. L. THOMPSON, Chief, Weights and Measures Section, Department of Agriculture, State of Maryland

Vice Chairmen:

L. A. GREDY, Director, Division of Weights and Measures, State Board of Health, State of Indiana

E. KEELEY, Supervisor, Weights and Measures, Department of Agriculture, State of Delaware

P. E. NICHOLS, Director, Weights and Measures, Alameda County, California

D. I. OFFNER, Commissioner, Weights and Measures, City of St. Louis, Missouri

Treasurer: C. C. MORGAN, Sealer, Weights and Measures, City of Gary, Indiana

Chaplain: J. H. LEWIS, Chief, Weights and Measures Section, Dairy and Food Division, Department of Agriculture, State of Washington

APPOINTED OFFICIALS

Sergeants at Arms:

R. J. CORD, Chief, Weights and Measures Branch, Division of Business Standards, Prince George's County, Maryland

R. A. THARALSON, Metrologist, Weights and Measures Division, Department of Public Service, State of Minnesota

EXECUTIVE COMMITTEE

E. W. BALLENTINE

F. L. BRUGH

H. W. CHANDLER

A. W. FENGER

S. F. HINDSMAN

G. E. MATTIMOE

J. B. RABB

W. C. SULLIVAN

M. TRUJILLO

W. J. TUSEN

(All officers of the Conference are, ex officio, members of the Executive Committee.)

(Officers and Executive Committee members elected by the 61st National Conference to serve the 62nd National Conference on Weights and Measures will be found in the report of the Nominating Committee, page 257.)

STANDING COMMITTEES

(The remaining term of office for each committee member, in years, is shown in parentheses.)

EDUCATION, ADMINISTRATION, AND CONSUMER AFFAIRS

R. T. WILLIAMS, Texas, Chairman

W. B. HARPER, Birmingham, Alabama (2)

W. H. KORTH, Ventura County, California (3)

A. J. LADD, Akron, Ohio (4)

S. VALTRI, Philadelphia, Pennsylvania (1)

(S. MALONE, State of Nebraska, was appointed for a five-year term to replace R. T. Williams, whose term expired. Mr. Harper replaced Mr. Williams as chairman.)

LAWS AND REGULATIONS

C. H. VINCENT, Dallas, Texas, Chairman (2)
J. T. BENNETT, Connecticut (3)
J. L. O'NEILL, Kansas (1)
R. W. PROBST, Wisconsin (4)
M. TRUJILLO, Puerto Rico (5)

(M. TRUJILLO, Puerto Rico, was appointed for a five-year term after having served the remaining one year term of R. L. Thompson who had been on the L&R Committee but stepped down to accept the chairmanship of the 61st NCWM. Mr. Vincent was re-elected as chairman.)

LIAISON WITH THE FEDERAL GOVERNMENT

E. H. STADOLNIK, Massachusetts, Chairman (2)
C. G. GEHRINGER, Pennsylvania Scale Company
C. H. GREENE, New Mexico (4)
W. N. SEWARD, American Petroleum Institute
J. F. SPEER, Milk Industry Foundation (1)

(C. W. SILVER, Revere Corporation of America, was appointed for a three-year term to replace C. G. Gehringer who retired. O. D. MULLINAX, State of Georgia, was appointed for a five-year term to replace W. N. Seward, whose term expired. Mr. Stadolnik was re-elected as chairman.)

NATIONAL MEASUREMENT POLICY AND COORDINATION

S. D. ANDREWS, Florida, Chairman
K. J. SIMILA, Oregon
E. H. STADOLNIK, Massachusetts
C. H. VINCENT, Dallas, Texas
R. T. WILLIAMS, Texas

(The members of this committee consist of the presiding chairmen of the other four standing committees and a fifth member, who serves as the committee chairman, who is appointed annually from a list of former Conference chairmen who are still active in weights and measures. Mr. Andrews was re-appointed as chairman.)

SPECIFICATIONS AND TOLERANCES

K. J. SIMILA, Oregon, Chairman
J. R. BIRD, New Jersey (3)
W. E. CZAIA, Minnesota (1)
M. L. KINLAW, North Carolina (2)
C. WOOTEN, Florida (4)

(G. L. DELANO, State of Montana, was appointed for a five-year term to replace K. J. Simila, whose term expired. Mr. Czaia replaced Mr. Simila as chairman.)

ANNUAL COMMITTEES

Nominations: J. H. LEWIS, Washington, Chairman; S. D. ANDREWS, Florida; G. L. JOHNSON, Kentucky; J. H. JOHNSON, Louisiana; C. C. MORGAN, Gary, Indiana; W. I. THOMPSON, Monmouth County, New Jersey; W. S. WATSON, California

Resolutions: S. F. HINDSMAN, Arkansas, Chairman; A. J. ALBANESE, New Britain, Connecticut; L. D. DRAGHETTI, Agawam, Massachusetts; J. A. ETZKORN, South Dakota; C. E. FORESTER, Texas; T. E. KIRBY, Georgia; S. A. MALONE, Nebraska

Auditing: D. L. LYNCH, Kansas City, Kansas, Chairman; K. R. ADCOCK, Ohio; J. B. HARDY, JR., Mississippi

Associate Membership: E. E. WOLSKI, Colgate-Palmolive Company, Chairman; R. H. DOUGHERTY, National Canners Association; W. F. GERDOM, Tokheim Corporation; R. J. LLOYD, Scale Manufacturers Association; R. W. MILLER, Jewel Food Stores; R. SOUTHERS, American Petroleum Institute; T. M. STABLER, Toledo Scale Division/Reliance Electric Company; M. S. THOMPSON, Chadwell, Kayser, Ruggles, McGee, and Hastings; R. R. WELLS, Seraphin Test Measure Company

REGISTRATIONS

SANDRA EDGERLY, BEVERLY FRAZIER, DAPHNE JOHNSON, RITA MAYEUX, DEBORAH NEAL, PATRICIA RASCHELLA, ELEANOR ROZSICS

LADIES' ARRANGEMENTS

MRS. H. F. WOLLIN
MRS. O. K. WARNLOF

METROLOGY WORKSHOPS

There were four metrologists' workshops scheduled during Conference week. The purpose of these workshops was primarily to train State and local metrologists in laboratory calibration procedures and techniques.

MANUFACTURERS' EQUIPMENT DISPLAY

An informal display of new equipment by manufacturers was held on Monday afternoon from 4:00 to 7:00 p.m. for the education of the Conference delegates.

MONDAY, JULY 12, 1976
and
TUESDAY, JULY 13, 1976

OPEN COMMITTEE HEARINGS

Monday and Tuesday were set aside for hearings of the five Conference standing committees. Notices of these hearings were carried in the Conference Announcement booklet, in all pre-Conference publicity, and in the printed Conference program. Many delegates participated in the committee hearings. During the hearings of the committees, presentations were given by representatives of weights and measures, industry, government, and consumer groups. The discussions which took place played an important role in guiding the committees in their deliberations and preparations of their final reports. The final reports of the committees will be found beginning on page 160 and will reflect the discussion that took place and the actions taken by the Conference at the time the final reports were presented to the delegates.



REPORT OF THE SIXTY-FIRST NATIONAL CONFERENCE ON WEIGHTS AND MEASURES

MORNING SESSION—MONDAY, JULY 12, 1976

(RICHARD L. THOMPSON, *Chairman*; Presiding)

MR. J. H. LEWIS, Washington, the Conference Chaplain, delivered the invocation and led the delegates in the Pledge of Allegiance.

METRICATION—A ONE-TIME OPPORTUNITY

Presented by RICHARD L. THOMPSON, *Conference Chairman*;
Chief, Weights and Measures Section, Department of Agriculture
State of Maryland



It is with a great deal of pleasure that I welcome you to the 61st annual meeting of the National Conference on Weights and Measures. In the preceding twelve-month period, I have been called upon to represent this Conference on several occasions. It is my sincere hope that I have represented you adequately. In pursuit of these efforts, you should be aware that the assistance I received from members of the Office of Weights and Measures, NBS, and other weights and measures officials can best be

described as enthusiastic, sincere and in the best interests of this Conference.

For a number of years now we have discussed metrication; we have wondered about it; we have worried about it; and many of you will remember, the Conference even formed a committee to study it. All of this was done with the thought, "metrification is coming"; it is no longer necessary for us to wonder when it will arrive. The Metric Conversion Act passed by the United States Congress, forming Public Law 94-168, and signed by the President on December 23, 1975, clearly indicates, for you and me, that metrication is here. At the risk of sounding trite, "the dye is cast"; there is no turning back. This, of course, is not news to any of you; in reality the metric system has been with us for some time.

The Metric Conversion Act does, however, provide an official impetus to initiate positive action. Further, it creates an air of urgency which seems to suggest that we move forward regarding

this matter. Even though we will be dealing with these issues for many years to come, it appears that we now have a sound basis to seriously embark upon this major effect. As I indicated in my letter of invitation to each of you, probably at no time in the entire history of the National Conference on Weights and Measures has there been a singular issue of greater magnitude and eventual impact. The results of that which we accomplish here, regarding metrication, and that which will be accomplished by other segments of our society, may be felt for many years and generations to come. This is an effort of great importance and everyone will be watching.

“Metrication—a one-time opportunity”; an interesting subject for thought, to be sure. Just as you must, I have some thoughts and some concerns dealing with this issue and I’d like to share them with you today.

It appears that each of us is provided with a one-time opportunity to *carefully and wisely* plan for use of an entirely “new measurement system” in conjunction with weighing and measuring devices. I indicate *each of us* because weights and measures officials and all segments of the associate membership will be affected by this portion of our work. I use the phrase “new measurement system,” because to the average citizen the metric system of measurement is nothing more than something they have heard about, not something they are accustomed to using. Carefully and wisely is emphasized because we must make certain that our deliberations and our accomplishments result in that which generally best serves the needs of (a) the prospective users of those devices and (b) the individuals affected by the quantity determination established by those devices. The latter, of course, most frequently being the consumer.

Perhaps we have a one-time opportunity to develop an acceptable form of that measurement system for use in the sale of bulk commodities and indicating declarations of quantity on packaged commodities. Let us see if we can (if not immediately, at some future date) develop the type of quantity declarations that will compliment the historic philosophy of this Conference—equity through accuracy and the potential for value comparison, based on quantity. I think this will be a difficult task, but we have been faced with difficult tasks in the past. I trust we will enjoy a degree of success that is consistent with that which we have experienced over the last 60 sessions of the National Conference.

I see another opportunity; in some cases, we should strive to rid ourselves of archaic nomenclature and measurement custom resulting from a long past methodology in commerce. I am encouraged, for example, by what appears to be the softwood lumber industry’s positive approach to metrication. Hopefully, we will no

longer have nominal or incorrectly named sizes in lumber. Where is the logic in calling a piece of lumber a 2×4 , when the actual dimensions of $2'' \times 4''$ haven't been used or haven't been correct since dressed lumber reduced the need for rough-cut lumber.

Why are we still dealing with the bushel in some areas of agriculture when, in many cases, it really isn't needed any longer? Much to my amazement, I have seen purchase tickets or receipts that, instead of saying 6000 pounds of corn, display the statement 107 bu and—10 lb (a combination of volume and a rounded out figure in weight, accomplished by dividing 56 lb into 6000 lb). The education of those people raising our nation's food is generally equal to that of all other segments of our society. They are businessmen; they use relatively sophisticated equipment; they are accustomed to determining percentages of plant nutrients, digestible protein and moisture. They are confronted with a host of problems and they adequately deal with them, or they do not stay in business.

Many of these people own and operate weighing equipment and do not have a bushel measure in their possession. Why, then, do some businesses still cling to the use of that measurement term when quoting prices and when, in reality, they are quoting in terms of weight? The farmer is capable of determining the approximate number of bushels, should it suit his needs, if he is provided with the most accurate weight quantity determination possible. It is my view that quoting volume, when one means weight, is unnecessary and only fosters confusion. Perhaps metrication will help do away with this type situation.

As another example, I have been told of a local, well-known columnist and television personality whose main interest is in education and protection of the consumer—a worthy pursuit with which we are all familiar. It is with the kindest humor that I mention this. When asked how much a pint of berries should weigh, that individual responded, "A pint's a pound the world around." Armed with this information, a number of people proceeded to determine that most of the berries offered for sale were "short weight."—If metrication brings nothing else, I sincerely hope it results in laying that worn-out phrase to rest.

I am certain that all weights and measures officials here today have visions of how metrication will affect them. Surely, some will see it as a problem; some will see it as an opportunity. Certainly, we will all differ in our approach to this matter and the results of our efforts may not be the same. It appears to me, however, that we should make the most of this opportunity. Governmental agencies, in my view, react to new challenges and new problems in much the same manner as relatives do with new children. The youngest, the one requiring the greatest care and effort, seems to

get most of the attention and concern. Several years later, however, when a new interest or a new child arrives on the scene, those that have been around for awhile get less attention and, perhaps, less concern. I believe each and every weights and measures official would be well-advised to, immediately, acquire the tools they will need in order to properly administer the laws that will be affected by metrication. Do it now while interest is high because several years down the road there will be newer, shinier and, perhaps, more pressing problems that will be getting the attention.

Finally, I see one other opportunity; it is not, however, necessarily related to the metrication. Since we are about to try on a new system for size, would it not be an appropriate time for each of us to carefully review our current programs? Perhaps we should compare the method of administration with that which we read in the Model Laws and Regulations or the laws and regulations of our particular jurisdictions. If we cannot relate what we do with what we see in those documents, is it not an appropriate time to consider changing our approach?

Earlier, I suggested that it is time for us to move forward with dedication and purpose; let us do just that at this Conference. We must think of the future for, without a doubt, the next generation will find it difficult to understand the need for, or the logic of, two commercial measurement systems. Metric measurement and terms will present no problem for them; today's education will assure that.

While we are taking these positive steps toward use of the metric system, let us exercise care to ensure that we do not, immediately, create an unacceptable environment for those who have known only the customary system throughout their entire lives. Let us strive to ensure that the results of our efforts do not tend to work an extreme hardship on small businesses.

In his report to the Secretary of State in 1821, John Quincy Adams made this observation. "The knowledge of them (weights and measures or measurement), as in established use, is among the first elements of education, and is often learned by those who learn nothing else, not even to read and write. This knowledge is riveted in the memory by habitual application of it to the employments of men throughout life." I think this remains as the situation found today. We must acknowledge the fact that there remain segments of our society who will find it difficult to deal with an immediate transition.

Thank you for your courtesy; let us work hard in all our efforts during this Conference.

A DIFFERENT VIEW ON TOLERANCE APPLICATION

Presented by OTTO K. WARNLOF, Manager, Technical Services,
Office of Weights and Measures, National Bureau of Standards



It is a pleasure for me to have the opportunity to talk with you a few minutes this morning. There are many things I would like to discuss since the problems confronting the National Conference on Weights and Measures' Specifications and Tolerances Committee and, consequently, all of you, seem to grow by the minute. These problems stem, for the most part, from the technological revolution taking place in weighing and measuring systems. Today, more than ever before, the weights and

measures enforcement official, the serviceman, the salesman, and the design engineer must have a thorough knowledge of the requirements of Handbook 44 and a thorough understanding of the philosophy expressed in those requirements. The weights and measures inspector is confronted in the field with the most complex, sophisticated equipment he has ever experienced. In order that his field evaluation of the appropriateness of this equipment be adequate so that he can make a correct decision as to the disposition of the equipment, i.e., is it performing properly; are there design or modification characteristics that facilitate the perpetration of fraud; and most importantly, is the equipment the right equipment for the weighing or measuring application, he must have a complete understanding of the requirements of Handbook 44. However, since time is always limited, I have selected a subject which, although it may seem quite removed and not an immediate concern, is worthy of consideration and study by all involved in weights and measures activity.

Economic factors are always considered in weights and measures requirements and decisions.

In scale design and application, we in the United States have recognized this fact by specifying the value of the minimum graduated interval for certain weighing applications. For example, on animal scales, Handbook 44 requires the value of the minimum graduated interval to be 1 lb; on livestock scales, 5 lb; on grain hopper scales, 10 lb.

The philosophy expressed here is that as the value of the product to be weighed increases, the value of the minimum graduated interval decreases so that the weighing is performed to the closest nickel rather than dime, so to speak.

It was established years ago that for scales of less than 50 lb capacity used for weighing foodstuffs, the value of the minimum graduated interval should not be greater than 1 ounce. Those of you involved with any activity in this area know that this requirement is no longer viable, and was really meant for scales used to weigh in predetermined amounts; that is, 3 lb of onions; 10 lb of potatoes; 4 lb of apples, etc.

We all recognize that no one is going to weigh shrimp at \$6.40/lb to the closest 1 ounce or 40¢ worth, or steak at \$2.40/lb to the closest 1 ounce or 15¢ worth.

The Conference has long been asked to specify a value for the minimum graduated interval for scales of less than 500 lbs capacity. It has been unable to respond because there are too many scales with too many different applications to develop a minimum graduated interval for every application.

For example, what minimum graduated interval values should be specified for scales used for weighing grass seed in 1-lb or 2-lb boxes or 5-lb or 10-lb bags or 50-lb or 100-lb bags? Scales with similar capacities could be used for weighing nails in similar quantities; i.e., 1 or 2 lb or 5 or 10 lb or 50 or 100 lb. And then again, other products like precious metals, grains, seed corn, fertilizers, sand, cement, etc.

Over the last several years, I have had the opportunity to meet with representatives of many other countries and study documents developed for international recommendation through the International Organization of Legal Metrology (OIML).

I believe the OIML approach is the appropriate answer to this and other technical problems—as set forth in International Recommendation No. 3, “Metrological Regulations for Non-Automatic Weighing Machines.”

This regulation is based on the following general principles:

The accuracy of weighing of a given load is independent of the principle of operation of the machine used, whether self-indicating, semi-self- or non-self-indicating, graduated or ungraduated, with analogue or digital indication or printing.

The value “d” of the division of a graduated machine with analogue indication, the value “ d_d ” of the division of a machine with digital indication, the value “ d_c ” of the conventional division of certain machines indicate the accuracy of these machines.

Thus the maximum permissible errors are of the order of magnitude of these divisions, and are fixed in absolute values as

a number of “verification divisions e ”^{*} as a function of load, which itself is expressed as a number of divisions.

^{*}“ e ” being considered equal to “ d ” or “ d_d ” or “ d_c ” according to the machine concerned.

A “minimum capacity Min ” is specified to indicate that use of the machine with light loads is likely to give rise to very large relative errors.

The rules laid down apply to the weighing of loads at rest or in slow motion, whatever the position of the loads on the load receptor of the machines and whatever the method of equilibrium of these machines.

The ordering of the machines into accuracy classes is based on:

The number of scale divisions (representing relative accuracy); there is therefore a specific maximum and minimum number of scale divisions for each class, *and the value of the scale interval* (representing absolute accuracy); there is therefore a minimum value of scale interval for each class, the value decreasing with increasing accuracy.

Now then, let us recap:

- Accuracy is a function of the value of the scale division or minimum increment.
- Accuracy classes must be established based on the number of divisions and the value of the divisions.
- Weighing light loads results in large errors.
- These principles apply to all devices regardless of design technology.
- These principles apply to devices indicating in SI units.

Non-automatic weighing machines are divided, according to their properties, into four “accuracy classes” whose designations and identification marks are as follows:

Special Accuracy	=	Class 1	Mark:	I
High Accuracy	=	Class 2	Mark:	II
Medium Accuracy	=	Class 3	Mark:	III
Ordinary Accuracy	=	Class 4	Mark:	III

For a machine to belong to a certain class of accuracy, the scale interval must be equal to or greater than the minimum value fixed for each class as follows:

Special Accuracy : Minimum scale interval = Not Fixed
 High Accuracy : Minimum scale interval = 1 milligram
 Medium Accuracy : Minimum scale interval = 0.1 gram
 Ordinary Accuracy : Minimum scale interval = 5 gram

The determination of the accuracy class appropriate for a weighing application is specified by regulation by the individual country. This may include the number of scale divisions within an accuracy class. Let us apply these principles to weighing applications in the United States.

For weighing foodstuffs—It would reasonably be specified as a Class III or medium accuracy class device with at least 2,000 divisions. With a tolerance based on the value of the division, the error allowable would be:

- (1) one-half the value of a scale division for test loads from the minimum capacity up to and including the first 500 divisions,
- (2) one division for test loads from 500 divisions up to and including 2,000 divisions,
- (3) and 1½ divisions for test loads greater than 2,000 divisions.

It is further specified that since the error allowable is quite large at the low end, it is unlawful to use the very low end for actual weighing; and the low end values that cannot be used are specified and are a function of the number of divisions.

Let us apply this philosophy or these requirements to scales used in supermarkets in the United States—on a common device presently used—a prepackaging scale.

Scale Capacity: 25 lb × 0.01 lb = 2,500 divisions

Tolerance Application			
Test Load		Tolerance	
Division	Wt value	Division	Wt value
0-500 d	0- 5 lb	½ d	0.005 lb
500-2000 d	5-20 lb	1	.01 lb
2000 d+	20-25 lb	1½ d	.015 lb

A comparison of OIML tolerances with U.S. tolerances is as follows:

Tolerance Application			
O. I. M. L.		U.S.	
Test load	Tolerance	Test load	Tolerance
0- 5 lb	0.005	0- 7 lb	0.005
5-20 lb	.01	7-15 lb	.01
20-25 lb	.015	15-25 lb	.015

As you can see, the two tolerance applications are practically the same and should be of no problem to U.S. manufacturers. However, the OIML requirements go further and state that for this particular type of scale, you cannot weigh in the first 20 scale divisions or 0.2 lb.

Now let us apply these requirements to large capacity scales.

Sometimes because of requirements or because of competition, large capacity scales weighing livestock on the hoof with a price of 40¢ per lb are equipped with 20,000 divisions; yet those scales used to weigh the meat you eat, which may cost \$4.00 per lb or more, are equipped with 2,500 divisions. This seems to me an inconsistency.

When buying meat as a consumer, the uncertainty because of the value of the scale division of 0.01 is $\pm 1/2$ division or ± 0.005 lb, which is equal to 2¢ per sale on a 1-lb sale of \$4.00 or one part in 200 or one half of 1 percent (0.5%).

When buying cattle at \$40 per 100 lbs (40¢ per pound), as a buyer, the uncertainty because of the value of the scale division of 5 lb, is equal to $\pm 2 1/2$ lb or \$1.00 per sale on an average sale of 20,000 lb with a total value of \$8,000 or one part in 8,000 (not one part in 200) or 0.0125 percent.

Thus, our Scale Code requires that on an \$8,000 sale, it must be weighed to the nearest dollar; while on a \$4.00 sale, the nearest 2¢ is adequate. Expressing both of these values as a percent, in one instance, it is 0.5 percent and the other, 0.0125 percent or 40 times as good.

This does seem a bit inconsistent!

Why not specify for weighing livestock, the same principles as those for weighing meat; that is, a Class III scale with 2,500 divisions. If your average draft is 20,000 lb, a 50,000-lb scale with 2,500 divisions or 20-lb graduations is used. The uncertainty on that previous sale would then be ± 10 lb or \$4 on an \$8,000 sale, or 0.05 percent or one part in 2,000. That's still a better deal than the housewife got by a factor of ten (or ten times).

And this philosophy resolves other problems.

I am certain that a 5-lb division on a 100,000-lb scale is not a good technology for ordinary commercial applications. Thus, if a merchant needs a 100,000-lb scale for buying livestock, the minimum division would be 40 lb (2,500 divisions) and this device could

not be used for weighing less than 50 divisions or 2,000 lb. No need to specify single animal, etc.

Now let's discuss grain weighing.

Since the present grain market ranges from 5¢ to 10¢ per lb, it seems to me that the same principles used for livestock weighing can also be applied to those used for grain weighing.

Which brings us to another area of discussion. Some have suggested a reduction in the tolerances applied to scales used for weighing grain. If we were to apply that philosophy to the weighing of meat to consumers, it would be necessary to weigh a 3-lb roast on a prescription balance!

I suggest that the problem with the accuracy of quantity representations in grain is not caused by the scale errors. It is caused by weighing errors which is far different.

In several newspaper articles, it is pointed out that certain grain firms were fined for incorrect quantity representations. One article states that part of this error was a result of adjusting the scale to a fraction of the tolerance limit in the grain firm's favor. There are presently two requirements in NBS Handbook 44 that preclude this activity. They are as follows:

G-UR.4.1. Maintenance of Equipment.—All equipment in commercial service and all mechanisms and devices attached thereto or used in connection therewith shall continuously be maintained in proper operating conditions throughout the period of such service. Equipment in service at a single place of business found to be in error predominately in a direction favorable to the device user and near the tolerance limits shall not be considered "maintained in a proper operating condition."

G-UR.4.2. Use of Adjustments.—Weighing elements and measuring elements that are adjustable shall be adjusted only to correct those conditions that such elements are designed to control, and shall not be adjusted to compensate for defective or abnormal installation or accessories or for badly worn or otherwise defective parts of the assembly. Any faulty installation conditions shall be corrected, and any defective parts shall be renewed or suitably repaired, before adjustments are undertaken. *Whenever equipment is adjusted, the adjustments shall be so made as to bring performance errors as close as practicable to zero value.*

Thus, it is my suggestion that more resources be allocated to supervising grain weighing rather than reducing tolerances.

It is a false assumption that to obtain more accurate grain weight representations, the following actions should be taken:

- (1) reduce the tolerance on the scales used, and
- (2) test the scales more often.

A logical analogy to prove this point is as follows:

The Problem:
The Cause:
The Solution:

Highway Deaths
Excessive Speed
(1) Reduce the speed limit.
(2) Law enforcement agencies allocate resources to testing speedometers for accuracy to provide for a test of all speedometers in a given jurisdiction once every three months.
(3) Provide standards equal to two mph or four mph and step test to 60 mph.

And what about scale design for grain weighing?

Why weigh grain on a 150,000-lb hopper scale with 5-lb divisions (d) in 100,000-lb drafts? Why not 125,000 lb × 50-lb scale (that is, 2,500 divisions)? The OIML tolerance on a 100,000-lb test draft is 1 d or ±50 lb since 100,000 lb is equivalent to 2,000 d in this instance.

That is exactly the same tolerance application of 0.05% of the test load or, in this instance, ±50 lb on 100,000 lb.

Now isn't that remarkable! Perhaps here we might perceive the real problem if scale inaccuracies do in fact exist. In my view, it is weighing on hopper scales with 150,000-lb capacity that have not been tested with a sufficient amount of standards. Let us review the procedure for testing a scale of this type with 5,000 lb of standards. Let us assume that substitution tests will be conducted.

Here is the process:

Steps		Scale indication without error
1	Balance Scale	0
2	5000# standards on	5,000
3	5000# standards off	0
4	5000# grain on	5,000
5	5000# standards on	10,000
6	5000# standards off	5,000
7	5000# grain on	10,000
8	5000# standards on	15,000
9	5000# standards off	10,000
10	5000# grain on	15,000
11	5000# standards on	20,000
12	5000# standards off	15,000
13	5000# grain on	20,000
14	5000# standards on	25,000
15	5000# standards off	20,000
16	5000# grain on	25,000
17	5000# standards on	30,000
18	5000# standards off	25,000
19	5000# grain on	30,000
20	5000# standards on	35,000
21	5000# standards off	30,000

Now, we have completed 21 steps and have reached only 20 percent of scale capacity or only 30 percent of the average draft; and further, I am certain that the zero reference is no longer the same, and that those step tests with all that grain is not really substitution!

At a very early stage in this test procedure, this became a strain load test and there is no doubt about it. Actually, if 100,000 lb of grain were weighed on a 200,000-lb railroad track scale with 100-lb divisions, which has been tested with 100,000 lb of standards or a 20,000-lb hopper scale with 5-lb divisions tested with 10,000 lbs of standards, the chances of obtaining correct results (because of scale accuracy) are much better than weighing on a 150,000-lb hopper scale with 5-lb divisions, step tested to 100,000 in some 60 different steps.

In conclusion, I suggest that each of you thoroughly familiarize yourself with all of the International Recommendations of OIML before any recommendations for change in scale requirements and weighing applications are made or that any effort be expended in the development of Handbook 44 Metric; further, that those of you involved in weights and measures enforcement programs consider the allocation of more resources toward the supervision of weighing rather than the supervision of the weighing machine—which will result in more accurate quantity representations.

In closing, since this is the bicentennial year of our Nation, I would like to quote to you a philosophy of Thomas Jefferson as it appears engraved on a wall of the Jefferson Memorial in Washington, D. C.:

“I am not an advocate for frequent changes in laws and constitutions.

But laws and institutions must go hand in hand with the progress of the Human Mind, as that becomes more developed, more enlightened, as new discoveries are made, new truths discovered and manners and opinions change.

With the change of circumstances, institutions must advance also to keep pace with the times.

We might as well require a man to wear still the coat which fitted him when a boy, as civilized society to remain ever under the regiman of their barbarous ancestors.”

TARE WEIGHT IN COMPUTER ASSISTED CHECKOUT SYSTEMS

Presented by HENRY MORRIS, Manager, Point of Sale Systems,
Giant Food Inc.



My name is Henry Morris. I am Manager of the Point of Sales system for Giant Food, a regional supermarket chain of 108 stores, headquartered in Landover, Maryland.

I bring you greetings from Esther Peterson, Giant Food's Consumer Advisor, who had hoped to be with you this morning. She was invited to attend another important meeting—the Democratic National Convention. Her decision to go was a difficult one and she said that she hoped you would understand the importance of her choice

and she asked me to give you her sincere apologies for not being here.

I have been asked by the National Association of Food Chains to talk to you this morning about two issues that concern both our company and the retail food industry. Both issues concern the Universal Product Code/Point of Sales (UPC-POS) checkout system. The first is the general issue of what jurisdiction State and local weights and measures officials have over the UPC-Point of Sales system. The second issue is what specific methods of determining tare allowances under the UPC-POS system are permissible.

It is the respectful opinion of the retail food industry that State and local weights and measures officials now have the authority to carry out the goals of their profession with respect to the UPC-POS system under the wording of the existing Model Law.

The statement of PURPOSE (page 2) in the Introduction to the National Bureau of Standards Handbook 44 notes:

The purpose of these technical requirements is to eliminate from use, without prejudice to apparatus that conforms as closely as practicable to the official standards, weights and measures and weighing and measuring devices that are false, that are of such construction that they are faulty (that is, that are not reasonably permanent in their adjustment or will not repeat their indications correctly), or that facilitate the perpetration of fraud.

The statement of purpose clearly establishes guaranteeing accuracy of measurement and prevention of fraud as the two goals of

weights and measures divisions. That these are indeed the goals of the weights and measures profession is further reinforced in Sections G-S.2. and G-S.5.1. of the General Code of Handbook 44.

Careful analysis leads to the conclusion that existing regulations and definitions clearly give State and local weights and measures officials the authority to determine the accuracy of the new UPC-POS scales and to guarantee that these scales do not facilitate fraud. A section of the Model Law and a section of Handbook 44 supports this conclusion.

First, the general definition of "Weight(s) and (or) Measure(s)" found in the Model Law gives weights and measures officials jurisdiction over the UPC-POS system. This definition reads:

The term "Weight(s) and (or) Measure(s)" means all weights and measures of every kind, instruments and devices for weighing and measuring, and any appliance and accessories associated with any or all such instruments and devices.

Second, the new UPC-POS scales fall into the category of scales regulated in Section S.1.6.4. of Handbook 44. This section deals with Point of Sale Systems and outlines requirements for "sales information recorded by cash registers when interfaced with a weighing element." This is an accurate and complete description of the type of scales used in the UPC system.

Finally, we note that the Committee on Laws and Regulations of this 61st National Conference concurred with our conclusion that jurisdiction is established in existing regulations and definitions.

The retail food industry does, however, object to expanding the wording of the jurisdiction to cover "Universal Product Code related devices," as recommended by the State of New Jersey, and as being considered by this Conference. This expansion of jurisdiction is, first of all, unnecessary. But secondly, we feel that the recommendation of this wording was made without adequate appreciation of the implications of the term, "related devices." UPC related devices could include such areas as the store computer; (conceivably the software as well as the hardware), the laser beam scanner, the UPC symbol itself, UPC code label printing devices, headquarters computers connected to store computers, etc.

Control over these areas would *not* better guarantee either the accuracy or the honesty of the measurement. Those two goals can be adequately guaranteed now. Merely by test purchasing and checking the comprehensive sales receipt of the UPC system, the weights and measures official can determine if an accurate measurement has been made by the UPC-POS system. In fact, the sales

receipt that lists the weight, unit price and total price of the items weighed gives the weights and measures official the most accurate and sophisticated empirical evidence he has ever had.

However, control over the areas implied by the term "related devices" would give weights and measures officials authority in areas where they have never had authority. Furthermore, the training of weights and measures personnel has not encompassed computer technology and is unlikely to do so in the future. Broad authority to control both the performance and design of computers and other highly technical devices is a potential deterrent to innovation on the part of both manufacturers and users in the early stages of development. The use of that authority could require costly changes in the technology, with no guarantee that such use would be made on the basis of the most knowledgeable analysis or in the best interest of consumers and industry. We, therefore, respectfully urge you not to approve the expansion of the Model State Weights and Measures Law to include "Universal Product Code related devices."

The second issue concerning the UPC-POS system that has caused confusion among both weights and measures officials and industry technicians is the specific question of what method of determining net weight is permissible. In order to comply with the provision of Handbook 44 that scales must be set at zero (UR.4.1.) and that all sales must be net weight (as defined in Section 1.2 of the Model Law) products that are weighed with packaging material must allow for tare.

Companies using multiple types of packaging material currently use tare keys on UPC-POS systems, which allow for a net weight measurement. Another approach that would also guarantee a net weight measurement, which we would like to see this Conference approve for national use, is an allowance for an automatic adjustment for tare by the computer when an item is weighed. Such an adjustment would work in this manner. Companies using only one type of packaging—for example, plastic bags—would program their computer so that when an item was weighed, the weight of the packaging material would automatically be deducted from the gross weight and the computation of price would be on the basis of the net weight.

Everybody would benefit from such a system. First, it is the most accurate system since the process of allowing for tare is automatic. The possible human error of a checker either forgetting to press the tare key or mis-keying is eliminated. Secondly, industry would benefit. One of the major benefits of the computer assisted checkout is that it increases labor productivity by eliminating checker keying of prices. Keying of tare weight by checkers would reduce the savings in labor productivity. An automatic

allowance for tare would be the most efficient, least costly method of determining net weight from the point of view of the retailer.

Finally, the consumer would benefit. Accuracy, increased efficiency and the concomitant savings all benefit the consumer.

This automatic programming of tare fulfills all the requirements of Handbook 44 and the Model Law. It allows scales to be set at zero and for prices to be determined on the basis of net weight. It is our belief that it is, therefore, permissible under existing regulations.

In discussing this meeting with Esther, she told me the point she had hoped to make with you was the need for full communication and discussion about this new technology. The technology itself is such a major departure from past food retailing techniques that its successful implementation will require complete understanding every step of the way from all who are dealing with it—consumers, government officials, supermarket management and employees. She also wanted to express to you her appreciation of your organization's help in past endeavors and her confidence that by working closely with you, the system can be effectively utilized to the advantage of the consumer, government and the industry.

My presentation this morning on these two questions of jurisdiction and automatic tare allowance is a further attempt to keep you informed of the thinking of the industry. We are hopeful that you will concur with our analysis of both these questions, and we are appreciative of having had the opportunity to discuss these issues with you at your National Conference and look forward to a continued dialogue throughout the year.

EPA GASOLINE VAPOR RECOVERY PROGRAMS

Presented by ROBERT L. AJAX, Chief, Emission Measurement
Branch, Emission Standards and Engineering Division, U.S.
Environmental Protection Agency



On behalf of the United States Environmental Protection Agency (EPA), I want to thank the Specifications and Tolerances Committee for providing us this opportunity to participate in the Conference and to speak to you on the topic of air pollution control in the gasoline marketing industry.

Fifteen minutes is a very short time in which to describe to you a control program involving new technologies and newly emerging technical and regulatory problems possibly affecting tens of thousands of

gasoline service stations and potentially costing hundreds of millions of dollars. Because of the varied backgrounds of people in this group and the fact that many of you have probably not been introduced to this subject previously, the information presented is intentionally broad in scope. As a consequence, I will be unable to describe technical details to the extent that some of you may desire and for this I apologize. I do want to emphasize, however, that it is the desire of our agency to continue to work with you as this program moves ahead and to meet with you at the working level as the need arises.

The major areas of interest in the Federal gasoline vapor control program are (1) contribution of service station vapor emissions to the atmosphere, (2) types of systems available to control these emissions, and (3) regulatory approach being considered.

By way of background, oxides of nitrogen and hydrocarbons, two primary pollutants emitted from motor vehicles, contribute to the formation of photochemical smog. As you are well aware, increasingly restrictive measures have been imposed on motor vehicle emissions over the past five years and even tougher controls are scheduled for the future. In spite of the stringency of the controls on motor vehicles, further control measures must be imposed on hydrocarbon emission sources if national air quality standards for photochemical oxidants are to be attained.

In the formulation of Transportation Control Plans (TCP) it became evident that in many areas every available hydrocarbon control means had to be implemented if the national ambient air quality standard for oxidants was to be attained. This meant that

stationary sources—representing 25 to 35 percent of hydrocarbon emissions in most areas—had to be controlled along with the motor vehicle. Gasoline marketing controls were incorporated into TCPs because the sources released significant fractions of the Air Quality Control Region (AQCR) hydrocarbon burden and because control technology was more cost effective than most other available strategies.

CONTRIBUTIONS OF FUEL VAPOR EMISSIONS FROM SERVICE STATIONS

Current uncontrolled emissions from Stage II gasoline transfer operations are about two percent of the hydrocarbon emissions in typical affected AQCRs. These emissions are approximately equivalent to the hydrocarbons released from the tailpipes of vehicles meeting the 1977 standards and currently represent approximately four percent of the needed hydrocarbon reduction in a typical region. As on-the-road vehicles are replaced by newer models, this percentage will increase.

In view of this situation, and because controls are available at lower costs per pound of pollutant than for those for most other hydrocarbon sources, EPA, acting under court order, promulgated control plans in 1973 and 1974 that required a 90 percent reduction in gasoline vapors displaced during the filling of storage tanks. Similarly, the emissions from fueling of vehicles were also required to be reduced by 90 percent.

SYSTEMS AVAILABLE TO CONTROL GASOLINE VAPOR EMISSIONS

Stage I Controls

Equipment has been installed in 12 areas of the nation to control vapors released in the storage tank filling operations at service stations. Under the applicable regulation, the necessary equipment was to have been in operation by May 30 of this year, and to the best of our knowledge, most of the affected stations are now in compliance. Stage I control can be achieved with relatively simple hardware; the principal component is a vapor return hose from the storage tank to the delivery truck. As liquid drains from the truck, it creates a pressure in the storage tank and a vacuum in the truck, both of which can be applied to facilitate vapor recovery. Efficiencies of 95 to 97 percent are common for well-designed systems that are properly operated, and the amount of vapor recovered through the use of Stage I controls amounts to approximately 8 pounds per 1000 gallons of gasoline delivered.

EPA has published and distributed design criteria for Stage I control systems to the industry. The criteria are updated periodi-

cally as new information becomes available. Principal considerations are: drop-tube specifications, vapor hoses and connections, tank-truck inspection procedures, vent-line restrictions, and devices such as dry-break connections and interlocks, which assure that the vapor return hose is connected during tank filling. These criteria require a leak-tight truck; however, they are not intended (and it is not our policy) to preclude the opening of hatch covers for inspection briefly before or after delivery.

It is our hope that gasoline distributors can effectively train their drivers in vapor recovery procedures both for pollution control and for safety reasons. Properly utilized Stage I systems provide a degree of safety not heretofore possible at service stations. Nonetheless, if operators attempt to defeat the system—for example, by jamming the dry-break connection—extremely hazardous conditions may result. There have been instances of this nature wherein large volumes of explosive mixtures were released from the storage tank at ground level. To safeguard against such hazards, marketers in some areas have adopted firm procedures on Stage I recovery and severely penalize operators who do not follow the procedures.

Stage II Controls

Implementation of control devices for Stage II has been impeded by a number of factors including questions and controversies over the new and continually evolving technology, the need for EPA to clarify the intent of the regulation, and better definition of control requirements.

Of the two control techniques used to control Stage II emissions at service stations, the simpler and least expensive technology involves what is termed the “balance system.” The balance system depends upon the displacement of air and hydrocarbon vapors as a result of pumping gasoline into the automobile fuel tank. Pressure in the tank created by the incoming fuel forces vapor out to the atmosphere under current, uncontrolled conditions. The concept of the balance system is to provide an alternative route for the vapors—through a vapor recovery nozzle and return hose to the underground storage tank, where it replaces the liquid gasoline being pumped to the vehicle. Most of the vapor, which amounts to roughly 11 pounds per 1000 gallons, is conserved and converted to liquid product. The major problem encountered with the balance system involves attaining a tight fit at the vehicle fill neck.

The second type of control system is called the “vacuum assist system.” The vacuum assist system adds two features to the balance concept; namely, a blower that develops a suction at the nozzle/fill-neck interface and a processing unit to recover or otherwise reduce hydrocarbon emissions to the atmosphere. The

purpose of the blower is to influence displaced vapors to enter the vapor return line rather than leak to the atmosphere. The vacuum assist systems involve to some degree an influx of additional air and consequently require a processing unit—or secondary system—to control the excess hydrocarbon vapors not retained in the storage tank. As compared to a balance system of comparable efficiency, the processing unit acts to reduce the net amount of vapor conserved by roughly 30 percent. Although a number of processing techniques have been tried, most secondary systems now appear to be moving toward direct flame incineration, preceded in some cases by a carbon canister that serves as a holding tank.

In spite of several years of operation and testing, controversy still abounds as to which technology will be utilized. I am certain many of you have read articles—which often are written with great emotion—denouncing one or the other technologies.

EPA's technical staff believes that the balance system (possibly with the addition of some "hybrid" components) will prove acceptable. To a certain extent, the regulation we intend to propose (probably next month) reflects this view.

FEDERAL REGULATIONS

EPA proposed a revised regulation on October 9, 1976; however, from written comments received and in light of further advances in technology, we now find the need to modify certain basic aspects of the 1975 proposal. The changes are sufficiently extensive that we intend to repropose the regulation, that is, to draft another regulation and also solicit comments before finalizing it.

The revisions being prepared represent a significantly different approach to enforcement than that proposed in 1975. Instead of a certification program, the revision will require in-use compliance on a continuous basis. To minimize the technological and economic impacts of the regulations on the industry, station ownership will be divided into groups and the groups will be required to come into compliance with the regulations at different times and under different conditions.

Large companies, which have adequate technical and economic resources, will be the first to be expected to develop and install reliable, effective systems. At the other end of the spectrum will be small independent owners who do not have the capability to design or select reliable systems.

Stations dispensing more than 10,000 gallons of fuel per month will be required to achieve 90 percent control. However, since compliance will be phased, both within and among groups, only the

largest third of the stations owned by large companies will install control equipment in the first year.

During subsequent years, remaining stations will install controls on a phased schedule. A prime advantage to this scheme is that suppliers can produce and install the necessary hardware on a more protracted schedule. Also, experience derived from the initial installations can be used to improve design and operation of subsequent units. The program would allow small, independent operators the longest lead time and thereby reduce the economic impact on them. Similarly, this approach will place responsibility on the larger owners who also have the technical capability to resolve safety, reliability, and weights and measures problems. In this regard, as you know, several problem areas have not been fully resolved. Spillage has not been prevented even with the most effective vapor recovery nozzles; therefore, the "no-spill" provisions in the 1973 EPA regulations have had to be relaxed to allow up to five spills in each 100 vehicle fillings.

In recent months, the overfilling/spillage problem took a new twist when California authorities revealed cases of vapor recovery systems "stealing" gasoline from vehicle tanks being filled and returning it to service station storage tanks. Surprised California motorists sometimes found they had purchased more gasoline than their vehicle tanks would hold. Incidents of pumping 22 gallons into a Volkswagon and 37 gallons into a standard Chevrolet received a great deal of publicity. The phenomenon was traceable to the same cause as spillage, i.e., failure of the highlevel liquid shutoff in the nozzle. With the vapor recovery nozzle in place, liquid gasoline simply drains through the vapor return hose back down to the underground tank. California authorities have investigated the problem and determined that with proper operator attention, certain vapor recovery nozzles can be acceptable. Nonetheless, this history points out the need for a more positive means of preventing overfill. Better liquid-level shutoff devices and standardization of fillpipes and vehicle tank fittings probably could eliminate spillage and the possibility of gasoline flowing back to the station storage tank.

Beside the liquid flowback situation, Murphy's Law also surfaced a problem with vehicle fillpipe restrictors. As you know, most new vehicles are equipped with catalysts and associated fillpipe restrictors that prevent the dispensing of leaded gasoline. The restrictors, designed to fit the smaller nozzle spouts used with unleaded fuel, have a spring-loaded trap door to prevent filling unless the trap door is opened. Fortunately, the restrictors have a positive influence on vapor recovery in most instances in that they tend to position the nozzle so that a tight fit is obtained and leakage at the interface is prevented. The bad news is that in a

few vehicles the restrictor is too far down the fillpipe to be actuated by insertion of the vapor recovery nozzle. Thus, in California motorists have had to improvise mechanical devices in order to fill their tanks. Although the problem affects only a small fraction of 1975 and 1976 models and will be rectified in newer models, many of these cars will be with us for several years and station operators will have to make adjustments for these vehicles when Stage II equipment is in place.

On the positive side, we—meaning industry, vendors, control agencies, safety officials, weights and measures authorities—know a lot more about vapor recovery technology than we did a few short years ago. Most of the operating difficulties and safety problems are being resolved, and I can foresee the automobile industry initiating necessary changes in vehicle hardware to accommodate Stage II vapor recovery. Routine operation of Stage I and Stage II systems has yet to be achieved in many areas of the nation; however, we look to a continuing program of cooperation with the industry and regulatory authorities that will make these systems both safe and effective.

AFTERNOON SESSION—MONDAY, JULY 12, 1976

(PATRICK E. NICHOLS, *Vice Chairman*, Presiding)

DOCUMENTATION OF INTERPRETATIONS AND METHODS OF SALE

Presented by EARL W. JOHNSON, Attorney, Division of Special Statutes, Federal Trade Commission



It is indeed a pleasure and an honor to be asked to help initiate the hearings before this Committee on Laws and Regulations. I will be short because I know the agenda is long and there are many important issues to be discussed in a very short afternoon.

The subject I would like to address in the next few minutes centers on the utility of and need for more documentation of interpretations and the establishment of a method of sale chart which can serve as a quick reference for all concerned with pack-

aging and labeling. I think we will all agree that at the crux of this effort is the concept of uniformity. If regulations are uniformly interpreted, industry has reflected a greater ability to maintain voluntary compliance, and enforcement in all areas is simplified. The ultimate is in the benefit to the consumer who, because of uniform statements of net quantity and uniform locations of basic information, can make quick, reliable and beneficial value comparisons which is the established goal of Congress under the Fair Packaging and Labeling Act. As an example of this need for more uniformity, we have recently received complaints that identical resin compounds on the market are quantified, some in liquid and others in weight. Likewise, some liquid adhesives are still quantified by weight in spite of a voluntary standard established by the industry. In other instances, we have had inquiries as to the proper elements to be used in quantifying hardware items, household plumbing supplies and cooking utensils.

In 1971, Dave Edgerly, whom many of us know, authored a book entitled *Weights and Measures Labeling Handbook*. Part H of this book contains initial interpretations of the Model Regulations issued by the Conference. We are also all familiar with the various efforts that have been experienced to date in developing the model method of sale and we are about to hear a great deal more on this subject this afternoon. Both of these efforts are the embryo for my theme today. Both the staff at the commission and at the FDA

have developed some of this material as well. Working together, I am sure we can successfully knot the pieces to reflect the whole picture. Where I believe we fall short is in failing to record the day to day questions that arise. Although, they appear relatively simple at the time we work out the answers, failure to make a record of the decision leaves the way open for future errors or conflicting decisions.

In proffering a solution, I do not for the minute suggest saddling this very hard working committee with the entire burden. I believe the burden belongs to all of us who have questions as consumers, as operational weights and measures officials in the market area, as regulators and perhaps most importantly, manufacturers who have the initial problem of informative uniform labeling of their packaged products. I would hope that this committee could act as the focal point for all of this information. This could be developed into two very informative tools available to anyone concerned with the simplification of regulations which are designed to attain maximum uniformity of packaging information for ease of consumers value comparison in the market.

WHAT EVERYONE SHOULD KNOW ABOUT THOSE SUPREME COURT CASES HAVING TO DO WITH MOISTURE LOSSES—As of the Fourth of July, 1976

Presented by MERRILL S. THOMPSON, Partner; Chadwell, Kayser, Ruggles, McGee & Hastings



Thank you for the kind introduction. I hope I can be excused for saying that it is typical of the mutual respect shared by this National Conference on Weights and Measures and the Industry Committee on Packaging and Labeling (ICPL).

When your Program Chairman asked me to provide a status report concerning the California weights and measures cases¹ now on our Supreme Court's calendar, I accepted the task subject to two conditions. First, just as with Federal Trade Commission spokesmen like Earl Johnson, it must be understood that I am not giving this report in behalf of the ICPL, or in behalf of any of its members, or in behalf of any of my clients. In other words, I do not and cannot speak on the subject in a representative capacity.

Which leads me to my second condition. You must also understand that I do not bring to this podium the unassailable vision,

the extraordinary enlightenment, and the peculiar infallibility which are somehow acquired by advocates and contestants with vested interests. Stated another more mundane way, so far as *these* particular cases are concerned, no State department of agriculture, and no food packager, has as yet *paid* me to think—so together we'll have to risk the possibility that some of my objectivity may be attributable to ignorance.

For those of you who have not been following these cases through the courts, a bit of history may be helpful. Back in the fall of 1971, California officials apparently began to enforce with new vigor certain statutes and regulations governing the weights of foods in general—but prepackaged bacon and flour in particular. It soon became apparent that at least with respect to the hygroscopic products bacon and flour, there were substantial differences between California weight labeling requirements and the concurrent Federal requirements which interstate packagers deemed to be applicable to their products. As a result, those flour and bacon packagers believed that they were faced with the necessity of either overfilling their packages more than they had been, or changing to moisture-proof packaging materials, or bringing suit in a Federal court to enjoin the enforcement of the California requirements.

The Rath Packing Company, and a small group of flour millers which included General Mills, filed separate actions in the Federal District Court for the Central District of California. The *Rath* case was tried in the fall of 1972; the *General Mills* case was argued in early 1973. In both cases, the District Court Judge ruled against the State of California, in effect favoring the supremacy of the established Federal systems governing the package weights of flour and bacon in interstate commerce.

There were subsequent appeals and cross appeals to the United States Court of Appeals for the Ninth Circuit. On October 29, 1975, that Court of Appeals essentially affirmed and even expanded upon the District Court's rulings in support of the Federal regulatory systems. The Court, among other things, confirmed the District Court's ruling that the specific California statutes and regulations in question must be nullified.

Anyone in the audience familiar with these cases will quickly recognize that I am deliberately glossing over some very significant technical and legal differences between the meat case and the flour case. And I am just as deliberately declining to discuss the relative "consumer protection" merits of the California legal system and the Federal systems which were apparently in conflict when brought to bear on bacon and flour. Such a discussion would only invite the kind of rhetoric which is irrelevant to this status report.

But to be perfectly honest, my chief reasons for sidestepping the debate are because it is the only way I can stay within my time limits, and because I personally suspect those original issues have long ago been subordinated to the more central issue focusing on Federal versus State power.

While in the beginning it might have been safe to say that the controversy revolved around the Federal regulatory scheme which tolerates variations from labeled weight or measure when they are unavoidable or when they are attributable to moisture gains or losses, at this point in time I would phrase the "gut" issues as follows:

1. *Can* Congress pre-empt this particular area of weights and measures regulations and thereby diminish California's concurrent jurisdiction?

2. If Congress can pre-empt, *has* Congress in fact done so?

3. And if Congress has done so, have the FDA and the USDA properly implemented the congressional action?

The United States Court of Appeals for the Ninth Circuit has answered "yes" to all three questions. California and more than thirty of her sister States have understandably agreed that before accepting this "bad news" as the gospel, they want to hear it from our Nation's highest court.

As a result of petitions filed by California in January of this year, the Supreme Court did two things. First, it agreed to hear the appeals as to both *Rath v. Jones* and *General Mills v. Jones*. Second, the Court denied California's request that the injunction imposed by the Court of Appeals be postponed until the Supreme Court issues its decision. Accordingly, on May 13, 1976, the District Court issued an amended order among other things enjoining the State of California from any further enforcement of its challenged laws and regulations insofar as they have been held to be in conflict with Federal requirements. California now has a new set of interim regulations which they are enforcing while they wait.

So far as the cases before the Court are concerned, the briefing schedule of the parties is well underway. The cases are entered on the Court's calendar for the October term. Oral arguments will therefore occur sometime this fall. The Court might take from two to eight months after argument to render its decision. The Court's recent decisions concerning abortion and the death penalty are examples of difficult moral issues which often take the most time to decide. You and I may disagree on this, but I don't happen to believe that the *Rath* and *General Mills* cases are in the same category, so to me it seems reasonable to expect a decision within three to four months after argument. This would mean that we could have the guiding views of the highest court of our land to work with by the time of the next interim meetings of the

committees of this National Conference in late January or early February.

The Court has a number of options. It can, of course, arrive at opposite conclusions with respect to each of the two cases. As to either or both, the Court could affirm the lower court's decision on the same grounds as were expressed by the lower court, or it could affirm the lower court's decision for reasons different from those relied upon by the lower court.

The Court could reverse the lower court and in effect affirm the right of the State of California to enforce its laws and regulations, or the Court could reverse the lower court's decision but remand the case for further argument and re-decision by the lower court.

The Supreme Court's ruling *and* its reasoning will both be of great importance and guidance to us in the future as we formulate weights and measures policy and practice. The Court's decisions in these cases are likely to have threshold impacts upon both State and Federal laws and regulations, as well as any National Conference model having to do with permissible discrepancies between declared weights and measures and actual weights and measures. We should not expect the FDA or the FTC or the USDA to make any significant related policy changes while these cases are pending. Neither would it seem to be prudent for this National Conference or the National Bureau of Standards to proceed with related revisions of Handbook 67 or Section 12 of the Model State Packaging and Labeling Regulation until we've heard what the Supreme Court has to say.

I don't know if anyone is confidently predicting the outcome. Some will say that in recent years the Court has favored extensions of Federal authority, so we should expect affirmation of the lower court's decisions.

It's not my task to predict the outcome, so I won't. I will say, however, that having attracted the attention of the Supreme Court, we should now wait for its opinion. And as our very good friend Harvey Hensel has so often said, whether it be by Supreme Court decision, or by legislation, or simply through a spirit of cooperation, let's work together to achieve a system assuring informative labeling and fair value for the benefit of consumers in every city and State—with uniformity.

¹ The as yet unreported opinions of the United States Court of Appeals for the Ninth Circuit with respect to which certiorari has been granted bear the following captions:

THE RATH PACKING COMPANY,
a corporation,

Plaintiff, Counter-defendant and Appellant,

Nos. 73-2481
73-2482
73-3092

vs.

M. H. BECKER as Director of the County of Los Angeles Department of Weights and Measures,
Defendant, Appellee and Cross-Appellant.

C. B. CHRISTENSEN as Director of Agriculture of the State of California,

Intervenor, Appellee and Cross-Appellant.

THE RATH PACKING COMPANY,
a corporation,

Plaintiff and Appellant,

Nos. 73-2496
73-3180

vs.

JOSEPH W. JONES as Director of the County of Riverside Department of Weights and Measures,

OPINION

Defendant, Appellee and Cross-Appellant.

[October 29, 1975]

Appeal from the United States District Court for the Central District of California

GENERAL MILLS, INC., a corporation; THE PILLSBURY COMPANY, a corporation;
SEABOARD ALLIED MILLING CORPORATION, a corporation,

Plaintiffs-Counterdefendants-Appellants,

vs.

No. 74-1051

JOSEPH W. JONES, as Director of the County of Riverside Department of Weights and Measures,

Defendant-Counterclaimant-Appellee.

GENERAL MILLS, INC. a corporation; THE PILLSBURY COMPANY, a corporation;
SEABOARD ALLIED MILLING CORPORATION, a corporation,

No. 73-3583

Plaintiffs-Counterdefendants-Appellees,

vs.

JOSEPH W. JONES, as Director of the County of Riverside Department of Weights and Measures,

OPINION

Defendant-Counterclaimant-Appellant.

[October 29, 1975]

Appeal from the United States District Court for the Central District of California

CONFUSION AT THE MEAT COUNTER UNIFORM RETAIL MEAT IDENTITY STANDARDS

Presented by H. KENNETH JOHNSON, Executive Director, Food Science Division, National Live Stock and Meat Board



I would like to thank you for the opportunity to background you on the Uniform Retail Meat Identity Standards program—how the program got started; how it works and how the program has been accepted by industry, consumers and regulatory agencies.

We live in a world of choices. And that includes the thousands of choices the shopper faces at the supermarket where every week she can find as many as 10,000 different items for sale. If a homemaker spends

20 minutes in a store, that averages out to about a tenth of a second per product . . . to see it, to make a decision about it, and to buy it or not buy it. Up until now, that's been true for meats, too—so many choices to make—more than a thousand names to puzzle over, with the net result of utter . . . **CONFUSION AT THE MEAT COUNTER.**

For instance, "London Broil" (fig. 1) identified as a cut of meat, when in fact it is a menu label and way to cook beef. "Paradise



FIGURE 1

Roast" (fig. 2) probably refers to the cut's profitability, because it certainly is not a proper meat name. "Yankee Pot Roast" (fig. 3) is another down-home restaurant menu item and recipe, rather than a bonafide meat identification. "Chuck Wagon Cut" (fig. 4) is still another fanciful description for a cut of meat, rather than a handy, useful identification for the American food shopper.



FIGURE 2



FIGURE 3

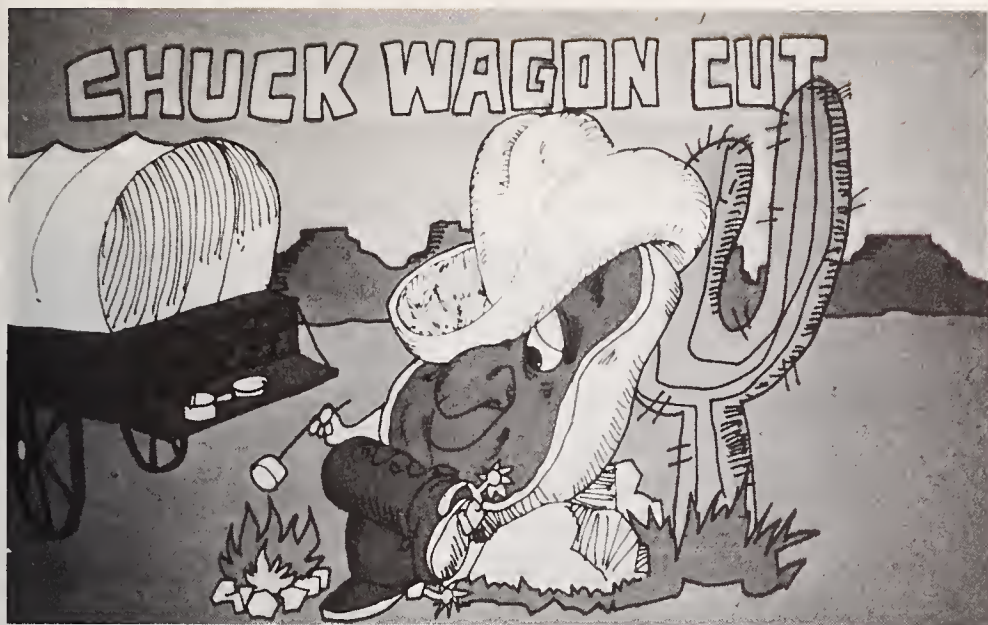


FIGURE 4

In fact, cuts of meat often had so many fanciful names that shoppers have been totally confused. Consumer advocates suspected the names were some kind of cover-up. For instance, what is now correctly called a Rib Eye Steak has in the past been labeled by these five common names: Delmonico, Fillet, Spencer, Beauty, Boneless Rib Eye, depending on the section of the country or even the side of the street you were on.

Government regulatory bodies a few years ago began considering laws for standardized meat labeling. In fact, a number of states and counties actually have passed such laws. Others took serious steps toward enacting them and the possibility existed that the country (fig. 5) would be criss-crossed with a patchwork of confusing, contradictory, restrictive standards that would do nothing but cause the meat industry one huge headache.

In late 1971, the National Live Stock and Meat Board took the lead in organizing the Industrywide Cooperative Meat Identification Standards Committee, a group of industry leaders whose purpose was to study the problem and propose a solution. The organizations represented on that committee are:

American Meat Institute

American Meat Science Association

National-American Wholesale Grocers' Association

National Association of Food Chains

National Association of Meat Purveyors

National Association of Retail Grocers of the U.S., Inc.
National Independent Meat Packers Association
National Institute Locker and Freezer Provisioners
National Live Stock and Meat Board
Super Market Institute, Inc.
Western States Meat Packers Association
Council of Better Business Bureaus
White House Office for Consumer Affairs
U. S. Department of Agriculture
 Livestock Division, Agricultural Marketing Service
 Meat and Poultry Inspection Program
 Animal and Plant Health Inspection Service

The objective was to prepare a standardized system of meat labeling and then to persuade the industry to adopt it on a voluntary basis. The program was designed to achieve two goals: first, to improve consumer relations by providing the homemaker with full knowledge of the meat products displayed in the meat counter; and, second, to eliminate the need for further legislation, which could lead to more and more costly and restrictive regulations on the meat industry.

This presentation is a brief report on what has been accomplished since the project began. The committee's work took over two years, during which time they gathered information, examined a number of labeling systems and finally developed the one



FIGURE 5

deemed most practical by industry consensus. The result was this manual (fig. 6), a complete guide to Uniform Retail Meat Identity Standards.

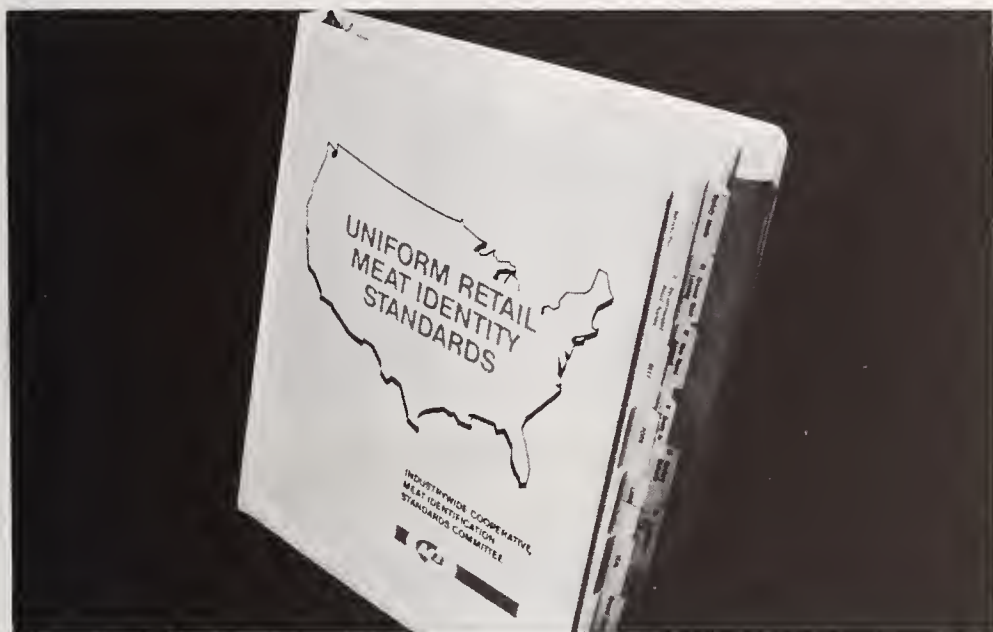


FIGURE 6

The total program, including merchandising and educational materials was introduced in late 1973 at a press conference in Washington, D.C. and was widely featured in newspapers, magazines, radio and television. The Today Show featured a 12 minute segment. The New York Times carried an article on page 1. Color pages (fig. 7) were produced and distributed by the Meat Board to newspapers all over the country. As the program generated excitement, feature stories began to appear. The first in Good Food magazine, another in Good Housekeeping, American Home and in Forecast—a journal of the home economics profession. There have been hundreds and thousands of pick-ups in the print media (fig. 8) including the trade press (fig. 9) and the interest continuing.

Fundamental to the entire program is meat cut nomenclature; that is, providing the customer with uniform information on the label that tells her the name of species or type of meat; name of the primal cut; and name of the cut by its approved retail name, in



FIGURE 7

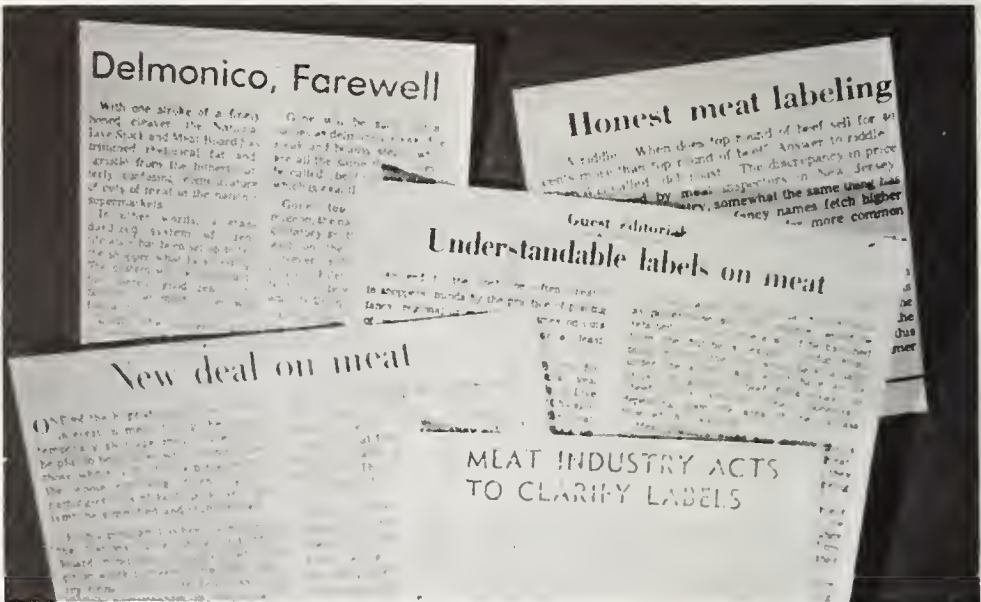


FIGURE 8

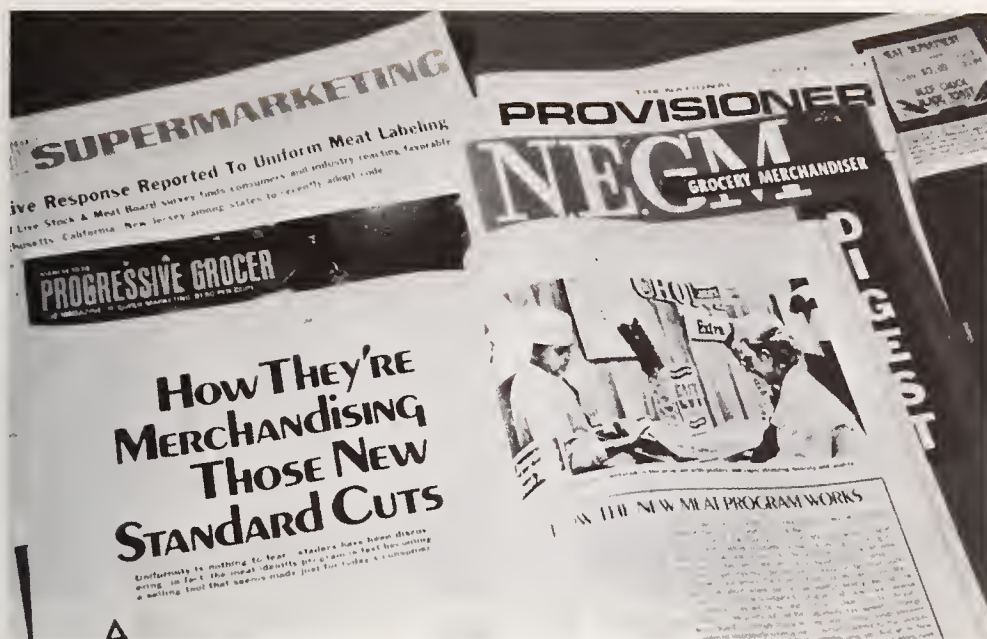


FIGURE 9



FIGURE 10

this case a “blade roast” (fig. 10). But if a retailer wants to, he can continue to use the “fanciful” name on a sticker or tag (fig. 11) but only if he first provides the basic data about type of meat, primal cut and the approved retail name on the label.

It’s a meaningful, simple, honest Meat Identity Program. So much so that it has passed the critical scrutiny of several con-



FIGURE 11

sumer activists organizations. It can be modified to fit any type of retail operation in any section of the country—all use a basic standard. Yet, each operation maintains its own identity; continues to develop variations on the merchandising theme; modernizes or changes its meat cutting methods and even develops new cuts. Best of all, it clarifies meat identification for the consumer.

The introductory section of the manual gives a brief history of the program, including a list of the thousand and more names which were used to identify only about 300 possible meat cuts. Chapter II is the basic core of the book (fig. 12) and includes all 315 of the agreed upon standard names, plus illustrations of all cuts. Chapter III provides a frank and open discussion of the problems a retailer faces in his ground meat program. And in Chapter IV it tells an innovative retailer how his ideas can be incorporated into the program with a simple procedure. Chapter V contains an important section on Meat Identification to help the counterman better understand his role as a “teacher” for customers. Chapter VI contains many pieces of information on basic meat cookery—again, to help the counterman provide information for his customers. In chapter VII, are basic data on the two principal, most popular systems currently used to bring pre-tendered beef to many retail counters.

Of course, no labeling system is effective unless the consumer understands it, so an educational program is a necessity (fig. 13).

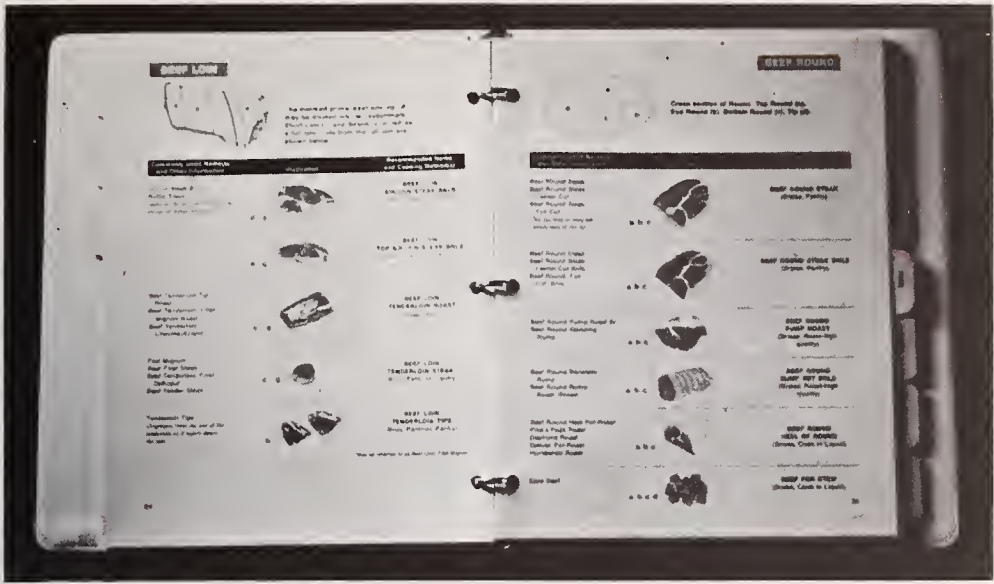


FIGURE 12



FIGURE 13

The Meat Board has prepared a comprehensive stock of informational materials for public use, but it is primarily retailers who must get them to the consumer. Many are already doing so, as you can see in this newspaper ad for Jewel Foods (fig. 14). Here's another, from Safeway (fig. 15), using its newspaper advertising to



FIGURE 14



FIGURE 15

begin the educational process. And here's how Acme presented the identity program to its customers (fig. 16). And yet another version of the meat standards theme as adapted by Big Bear (fig. 17).

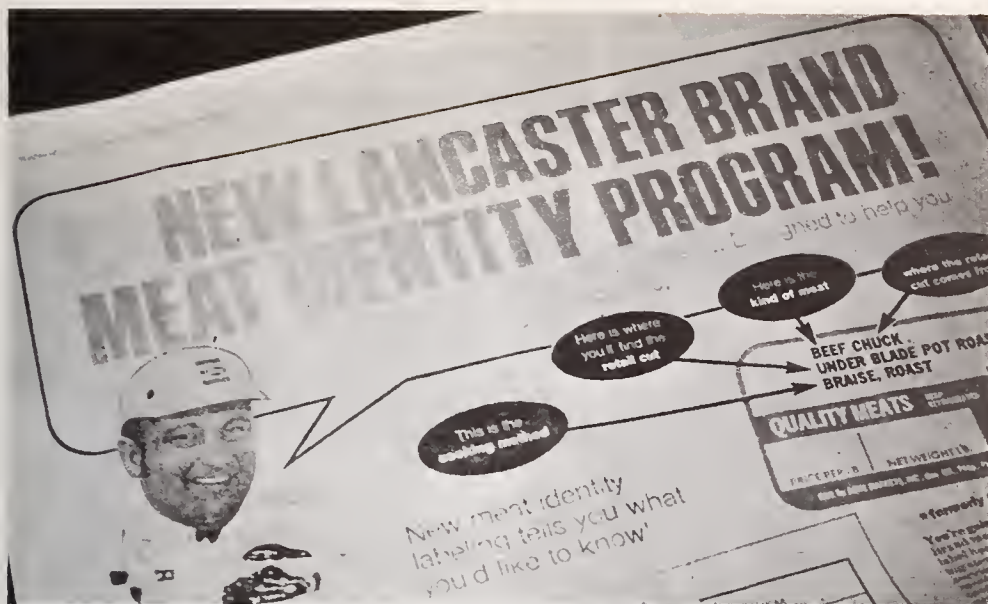


FIGURE 16

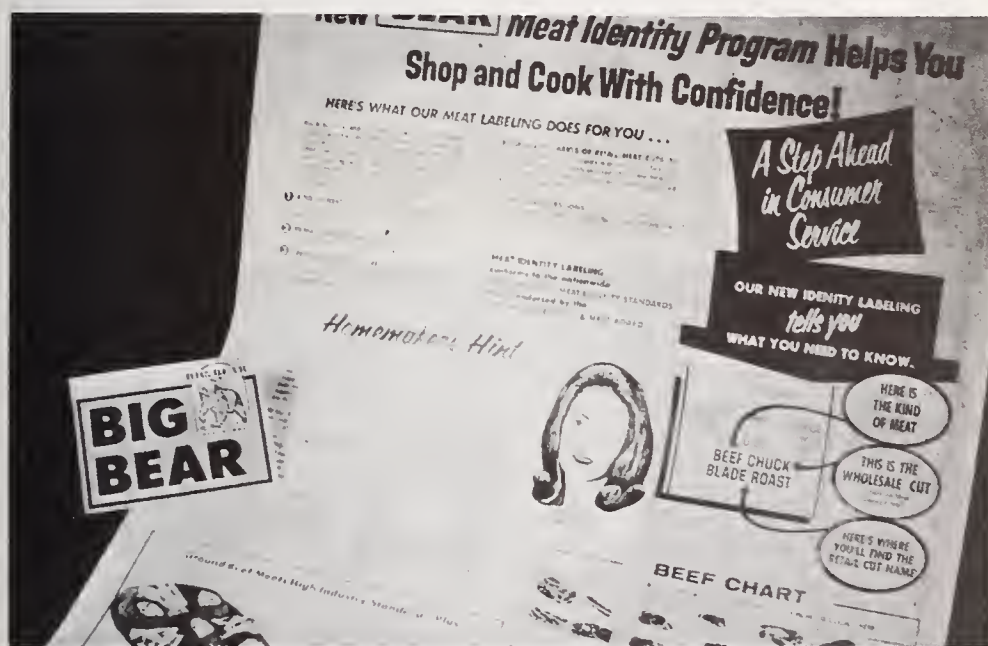


FIGURE 17

The Meat Board provides help for the retailer by making available suggested layouts (fig. 18) that can easily be adapted by the stores; in-store displays like these wall charts (fig. 19) that



FIGURE 18



FIGURE 19

illustrate the primal and retail cuts; dangles that explain our nomenclature for ground beef (fig. 20) and the all-important take home booklets and leaflets that explain labeling and suggest proper cooking methods.



FIGURE 20

It's a very complete program, but as we said, it's up to the retailers to make it available to the public. Are they doing it? The answer is a resounding yes! Major food retailers like Albertson's, Jewel, Big Bear and Winn Dixie, Publix, Schnucks, IGA and Acme, Safeway, Colonial, Stop & Shop, Allied, the Fleming Company, and others have adopted the Uniform Retail Meat Identity Standards program and are actively promoting it (fig. 21). And there are more independents and chains getting on the bandwagon everyday. This is strong evidence that the program works, to the benefit of both the retailer and the consumer alike.

Here's the current picture (fig. 22). Six States and two counties have adopted our Meat Identity Standards through the legislative route in whole or in part. Five more States have their own labeling regulations but are accepting ours. Nine more recognize our Standards with a voluntary compliance. And nine more are expected to join the program through pending legislation. An impressive line-up in such a short time.



FIGURE 21

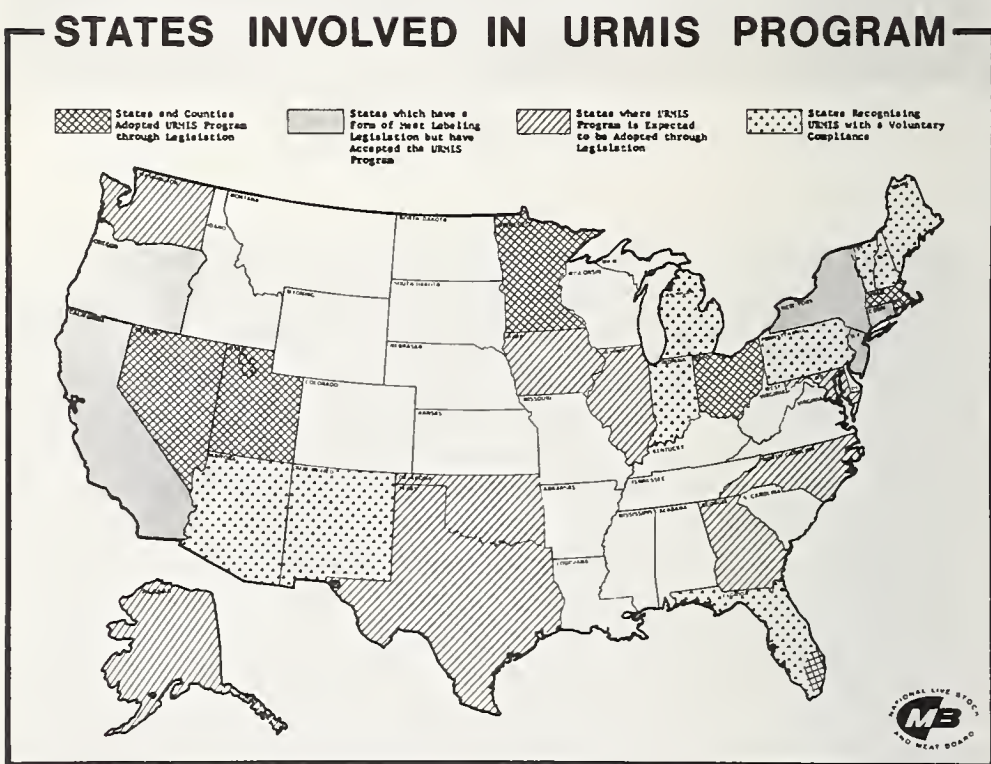


FIGURE 22

But is the consumer accepting the Meat Identity Program? Yes! Every indication from the field shows a very positive response . . . particularly with the younger shoppers, aged 18–24. As newcomers to the meat market, they really appreciate the educational service that the Meat Identity Standards program provides. The program also has been successful at the federal level. Two departments—Defense, which includes Army, Navy and Air Force; and Agriculture are using it in one form or another.

And that, in brief, is a summary of the activities of the Industry-wide Cooperative Meat Identification Standards Committee:

- ... A definitive manual published
- ... All the materials for a consumer education program
- ... And an aggressive campaign that is convincing more and more retailers every day to put the program into effect

It's been a busy period of achievements, but the work has only begun. Much more is needed to help solve the problems of Mrs. Homemaker of the meat industry at the retail counter.

At the Meat Board we stand ready to provide retailers with all the assistance they can use. All that's needed is a letter or phone call from you, and our more than 50 years of service to the meat industry is yours for the asking—big uniform posters, danglers, leaflets, retail meat identity standards manual, ideas, ads and counter cards—everything it takes to put the new meat identity program across and make more satisfied customers.

Uniform meat identity labeling is a program designed by the industry, for the industry, and it deserves everyone's support!

I hope my comments will be helpful to you in your consideration of adopting the Uniform Retail Meat Identity Standards program.

AN INTRODUCTION TO WEIGHTS AND MEASURES FOR CORDAGE PRODUCTS

Presented by WILLIAM H. HAGENBUCH, Chairman, Technical
Committee, The Cordage Institute



For the U. S. Cordage industry I should say "thank you" for inviting us to meet with you today. Now I would like to extend a reciprocal invitation to any of you to visit the headquarters of our trade association, the Cordage Institute, while you are here at the Shoreham. The Cordage Institute office is the first door you will come to if you go out the front door of the hotel and walk east on Calvert Street about 100 yards, or should I say meters! Of course, we are always happy to answer questions or discuss topics related to rope and twine from your group or from your home organizations.

From your program material you will note that the entire broad range of cordage is on the agenda for next year, and that the specific item this year involves only baler and binder twine. Before my comments on the model regulation for baler and binder twine, I should like to tell you a bit about our plans for metrication in the cordage industry and give you a brief overview of the entire line of cordage products.

With respect to metrication, the Cordage Institute recognized its responsibility and adopted a five point metrication policy last year.

CORDAGE INSTITUTE METRICATION POLICY

*Simplify Product Line.

- Fewer Standard Sizes
- "Hard" Conversion

*Discourage Haphazard, Superficial, & Uncoordinated Conversion.

- Otherwise Confusion!

*Timetable.

- 1983 Complete

*Recognize Laws & Regulations.

—The S. I. System

*Coordinate With All.

—Govt. Agencies

—Textile Groups

—Users, Etc., Etc.

We are working toward a “hard” conversion with a simplified product line; that is, fewer standard sizes in a rational metric series.

And we will be doing all we can to discourage haphazard, superficial, and uncoordinated efforts which tend to confuse and delay a rational and orderly conversion.

Our tentative timetable contemplates completion of the switchover to metric units in 1983. Right now, and for the next year we will be examining the parameters and units to describe metric rope and twine. Already there is good agreement that we do not like the tradition of naming large size cordage rope by its circumference. Would you guess that this rope I am holding is a 12 inch rope; that is, if you refer to circumference. We would like to talk nominal diameter only, and of course the units would be millimeters—in accord with the S. I. system. Thus, this would be 100 mm diameter braided nylon (about 4 inches under the present system).

Of course we would like to use S. I. units exclusively as specified by Federal law—and we hope that the States, and the general public will accept S. I. units. However, some S. I. units will not be as readily accepted as millimeters and kilograms. For example, in the S. I. system, twine size should probably be listed in kilotex—that’s a special name for grams per meter. And the S. I. unit for force or strength is not kilogram, it is the Newton.

Certainly these exotic names bring up some questions. The final answers to such questions will not be given by me, or the Cordage Institute, or even the entire textile industry. The answers to these and a thousand more questions will come after thorough coordination across the entire nation. In this major task we look forward to the active leadership of your organization and especially to the National Bureau of Standards and the Office of Weights and Measures.

To describe our products I should at least list the principal fibers:

CORDAGE FIBERS

NATURAL

- *Hemp = true hemp—marijuana
- *Abaca = manila hemp—manila
- *Jute = fine twine—burlap
- *Sisal = course twine—baler

SYNTHETIC

- *Nylon—high stretch
- *Polyester—high price
- *Polypropylene—all purpose

For centuries true hemp was *the* fiber for rope and twine. It grows easily in this country—but the Federal Narcotics Bureau will take a dim view of any commercial farmers because the plant also produces marijuana. Since 1900, superior fibers from the tropical countries around the world have replaced hemp, and hemp is now obsolete—but I have included it here because the name is so commonly misapplied to these other natural fibers.

MANILA (from the Philippines), more properly called abaca is the best of the natural fibers for rope.

JUTE (from the Indian sub-continent) is the choice for fine soft twines. You will recognize Jute as the fiber from which burlap is made.

SISAL is the choice for course twines, such as the baler and binder (which is your agenda item this week) partly because of the low cost. Baler twine is absolutely *the* cheapest textile product. Or at least it had been traditionally—until the growing countries, the developing tropical countries around the world, discovered they could form an international cartel just like the oil producing countries.

NYLON was the first of the synthetics, and it is still among the strongest. Unfortunately for general purpose application it is too stretchy. Generally, when you pull on one end of line, you want the other end to move, you do not want the line to stretch. And I must mention the danger from snap back of a highly elastic rope: In case of an accidental break, the action can be analogous to swatting flies with a rubber band.

POLYESTER, which many of you know by the trade name “Dacron,” makes superior rope and twine. However, the price is too high for many applications, but this may be changing.

POLYPROPYLENE, the same sort of material from which plastic bags are made, looks to be the most popular fiber for the future for both rope and twine. The properties are excellent and the cost is low even though it is made from petroleum (or natural gas). Polypropylene is easily recognized by the colors—the colors

are incorporated in the plastic, rather than applied by a separate dying operation on the fiber.

At this stage I should mention a technical breakthrough in the processing of polypropylene. In the 50's it was discovered that polypropylene fiber could be made by fibrillating a film and that such a fibrillated film had excellent knot holding properties as opposed to the round slippery filaments which had been characteristic of all synthetic fiber. This development led to the introduction of polypropylene baler twine—and you will see this interconnected web of fibers in much of the synthetic baler twine and polypropylene rope. Of course, other variations on the fibrillated film and the round filament are used successfully in polypropylene cordage.

Given these six fibers (and the special limitations on some of them) we can make almost any size of cordage by twisting small elements together—or a series of equivalent operations.

Obviously the first step is to twist the fibers into a yarn. At this stage the yarn can be easily untwisted; and of course, in untwisting, it will lose all or part of its strength. Nevertheless, for some specific applications, where untwisting is not a special problem, this single twist yarn can be sold as the finished product, such as baler twine. When we build the single yarn as an end product, we call it twine to distinguish it from the yarns intended for further processing.

For most uses, a good twine should have the twist “locked-in” by a second twisting operation which of course results in a plied twine, two or more plies. All twines are intended for one time use—the string savers among you are not popular with the cordage manufacturers.

For repeated use a third twisting or laying operation is traditional. This third operation produces a remarkable structure—a rope—which is strong because the load is appropriately shared among the thousands of fibers and still flexible. Other constructions such as plaited and braided ropes also have their special uses, but the traditional three strand rope is hard to beat for all-around characteristics including knotting and splicing.

Now to get on with your agenda item. This is Item 5 on page 83 of your announcement booklet.

I was pleased to hear the final report on this item by the chairman of your Committee on Laws and Regulations. This report reflected several changes made in the language of the tentative report, all of which represented positive improvements.

Several manufacturers had submitted written statements to the committee and the Cordage Institute had indicated complete concurrence with the most detailed of these statements—that from International Harvester. In addition, the Executive Director of the Institute and representatives from International Harvester

and Cordemex, met today with the Committee on Laws and Regulations.

We are impressed by the process which you follow in your committee hearings and in the proceedings of the National Conference itself. We are convinced that our experience at this Conference on baler and binder twine has laid a good foundation for our cooperative efforts on other items of cordage.

REPORT AND RECOMMENDATIONS TO THE NATIONAL CONFERENCE ON WEIGHTS AND MEASURES ON THE MEASUREMENT OF KILN DRIED HARDWOOD LUMBER

Presented by E. HOWARD GATEWOOD, Secretary-Manager,
National Hardwood Lumber Association



Since its formation in 1898, the main purpose of the National Hardwood Lumber Association (NHLA) has been the maintenance of the Official Rules for the inspection and grading of hardwood lumber, and it employs a staff of 58 men throughout the United States and Canada to perform official inspections. It maintains a school in Memphis for the teaching of hardwood lumber grading. Its total international membership is 1,371 firms, of which 869 are manufacturers, wholesalers, yard distributors

and dry kiln operators of hardwood lumber in the United States and 238 consumers of hardwood lumber in the United States. Since its major objective is the maintenance of a dependable system for the measurement and grading of hardwood lumber which insures fairness to both buyer and seller, it has a strong interest in the matter under discussion and is the logical organization for the National Conference to work with in such matters.

Unlike softwood lumber, hardwood lumber is a raw industrial material which is sold in random widths and lengths, usually unsurfaced, to manufacturers of hardwood products such as furniture, cabinets, architectural woodwork, flooring, pallets, etc. Most hardwood lumber is sold to such larger industrial users, which are called "consumers" in the trade since the chain of distribution ends at that point. These customers have thoroughly understood the past common practice of utilizing the green or air dried footage for kiln dried hardwood lumber, even though it shrinks to some degree in the dry kiln.

Hardwood lumber must be kiln dried before use, except some of the lowest grades used for pallets, mine timbers, etc. Although many large customers operate their own dry kilns and buy hardwood lumber green or air dried, others without kilns buy it already kiln dried. Those customers with their own kilns often find it necessary to buy kiln dried lumber and they usually insist on green or air dried footage figures since their yield equations are based on green or air dried lumber, whether they do their own kiln drying or buy it already in that condition.

All hardwood lumber shrinks in the kiln from 4.1 percent (Mahogany) to 9 percent (Southern Red Oak). The practice which

has developed over the years has been to charge the green or air dried price for kiln dried lumber plus the charge for kiln drying and to also use the green or air dried footage for kiln dried lumber rather than to reflect kiln shrinkage in the price as an element of cost. Thus, on an order for 10,000 feet of kiln dried lumber, an accurately measured 10,000 feet of green or air dried lumber is placed in the kiln and the result is shipped and invoiced as 10,000 feet, even though it may have shrunk in the kiln to from 9,100 feet to 9,600 feet. In cases where the lumber has been measured after kiln drying, the appropriate percentage for shrinkage usually has been added back to the measurement to arrive at the green or air dried footage. This practice has been in the past fairly universal in the industry and has tended to keep quotations on a standard basis from a standpoint of quantity to be furnished.

It is understood that this trade practice of many years came to the attention of the California Division of Measurement Standards in connection with a small order for kiln dried lumber placed with a wholesale distributing yard by one of the schools there. This lumber was invoiced on a green footage basis, since that was the way in which the yard involved had purchased it. Although this type of business is a very small part of the total volume for hardwood lumber it could be argued that some small customers might not have the knowledge to understand wood shrinkage, and that hardwood lumber which is measured after kiln drying, should be sold and invoiced on a net kiln dried footage basis, or the percentage of shrinkage allowance clearly indicated on quotation and invoice. If measured prior to kiln drying, this should also be made clear on invoice and quotation.

The handling and distribution of hardwood lumber is somewhat varied.

Some hardwood sawmills operate dry kilns, but many of these measure and sort the lumber green as it comes from the saw, later kiln drying individual lots for specific orders with no additional measuring. Many such mills buy lumber to supplement their production and this lumber is measured green as it is received and is paid for on this basis and it is usually not remeasured after kiln drying.

Many mills do not have kilns, but sell lumber in its green or air dried state. If their customers require it kiln dried, these mills utilize custom dry kilns enroute to the customer. Remeasurement of kiln dried lumber at custom kilns is usually not possible because space, labor and equipment are not available. Cost of such an unnecessary operation would be uneconomical, if not prohibitive.

Hardwood lumber is often sold through the office wholesaler, who usually purchases packages of green or air dried hardwood lumber from various mills and, if it is not to be resold in that

condition, has it shipped to a custom dry kiln and stored for future sale. As the wholesaler sells this lumber, he instructs the kiln operator to dry it and ship it. The wholesaler depends on the green tallies furnished him by the mill from which he purchased the lumber and it would not be feasible to perform a second inspection after kiln drying. Even if it were feasible or possible, the cost would often exceed the wholesaler's profit margin. Even when lumber is purchased kiln dried, green or air dried measurement may be all that is available.

Unlike the office wholesaler, the wholesale distributing yard maintains an inventory, along with yard and warehouse facilities. It generally purchases kiln dried hardwood lumber in carload or trailerload lots and sells it in smaller quantities to users in its area. It has facilities for measuring the lumber as it is sold.

Some hardwood lumber firms perform several of the above functions, and utilize green or air dried measurement basis for the sake of consistent record keeping and customer quotations.

Following Harold F. Wollin's letter and telephone call of October 1, 1975, to NHLA headquarters, the subject of kiln shrinkage allowances has been thoroughly examined by the NHLA Board of Managers and the general membership. There have been extensive debate and differences of opinion on all facets of this issue.

The NHLA Board action on October 13, 1975, which was presented to the Laws and Regulations Committee of the NCWM on January 27, 1976 as an interim position, has been reconsidered and revised because of membership suggestions regarding proposed changes in established industry trade practices.

A recommendation to the National Conference on Weights and Measures was unanimously approved by the NHLA Board of Managers at its last meeting on April 5-6, 1976, which appears to have achieved virtually complete acceptance by the membership and promises a high degree of compliance. Since publishing this recommendation in the NHLA Newsletter of April 15, 1976, no letters of criticism have been received and two previously dissenting members on opposing ends of the argument have stated on the telephone they are satisfied. Of course, in a membership as large and diverse as that of NHLA, complete unanimity is rarely possible, and there may still be a small percentage of the membership which does not agree with this recommendation.

More importantly from the standpoint of the National Conference, it is submitted that this recommendation would most adequately protect both large and small purchasers of kiln dried hardwood lumber against any possibility of misunderstanding as to the amount purchased, invoiced and received.

The recommendation of the NHLA Board of Managers, as approved April 5-6, 1976, is that the reference to the trade practice

regarding kiln shrinkage allowances now appearing in the NHLA Rules Book be deleted and replaced by the following:

“In accordance with the laws, regulations and standards of the various States, the National Conference on Weights and Measures has determined that:

1. Hardwood lumber which has been measured after kiln drying shall be quoted and invoiced with no addition for kiln shrinkage, unless otherwise agreed between buyer and seller; in which case the basis of measurement and the percentage added for kiln shrinkage shall be conspicuously stated on each quotation and invoice.
2. Hardwood lumber which has been measured prior to kiln drying may be quoted and invoiced on green or air dried measurement, provided that the quotations and invoices conspicuously state that the lumber was measured prior to kiln drying.”

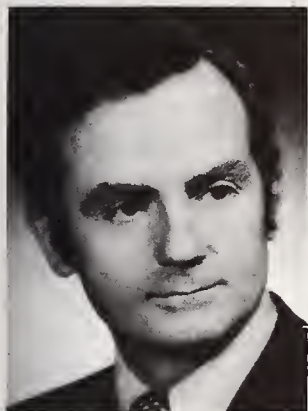
Immediately on being advised that the National Conference on Weights and Measures has approved this proposed regulation, NHLA will proceed to print it on 30,000 gummed sheets and send these to members throughout the world for incorporation in their copies of the NHLA Rules Book. It will also be included in future reprintings of the Rules Book. NHLA will also publicise this regulation in its monthly Newsletter. These measures will insure a high degree of compliance.

MORNING SESSION—TUESDAY, JULY 13, 1976

(DANIEL I. OFFNER, *Vice Chairman*, Presiding)

METRICATION USA

Presented by MALCOLM E. O'HAGAN, President, American National Metric Council



When on December 23, 1975, President Ford signed the Metric Conversion Act of 1975, he brought to an affirmative conclusion one of the longest congressional debates in the history of the U.S.—the debate on whether or not America should convert to the metric system of weights and measures.

Although use of the metric system in the U.S. was legalized over 100 years ago, the customary system prevailed and meters and liters did not find popular favor—despite early optimism. Upon returning from a European tour in 1902, Dr. Stratton, the first Director of the National Bureau of Standards, said, "It will be a close race between the United States and Great Britain as to which shall first adopt the metric system." It might have been more appropriate for him to talk about a race to see who will be last to convert. The Chairman of the Congressional Committee before which Dr. Stratton was testifying said, "I believe that the metric system is coming just as surely as the tides are going to continue to rise and fall." Little did he realize how long it would take the metric tide to come in.

A Decision Whose Time Has Come?

But is it really coming in or are we also victims of our own optimism? Why can we say now with greater assurance that the U.S. finally is serious about adopting the metric system?

Although many of the same old arguments for and against the metric system are still heard today, a changing domestic and international environment places those arguments in a different context. There are five major factors which have fostered a more favorable climate for conversion:

- (1) The adoption by the General Conference of Weights and Measures of the International System of Units, SI.
- (2) The emergence of multinational corporations with global operations.

- (3) The decision of our trading partners in the English speaking countries to convert to SI.
- (4) The increased importance of international commerce and communications.
- (5) The signing of the Metric Conversion Act of 1975.

In 1960, world interest in the metric system was revived with the adoption by the General Conference of Weights and Measures of a modernized version of the metric system—Le Système International D'Unités, SI. Adoption of SI by the General Conference of Weights and Measures presented the world for the first time in its history with a truly coherent system of units. And the world responded favorably. In 1965 the British Government announced that it would abandon the system of weights and measures it had spawned and spread throughout the Commonwealth in favor of the modernized metric system. South Africa initiated an SI metric conversion program in 1967, and Australia and Canada followed suit in 1970. A year later the European Economic Community issued a directive requiring the use of SI units in trade and commerce within the Common Market by 1978. The European countries will therefore be obliged to phase out some of their traditional metric units in favor of the modernized SI units. And so it would seem the world is finally converging on a common standard for weights and measures. And the United States can be a leader in the move to SI. Remember terms like celcius, newton, pascal and kilojoule are as new to the rest of the world, including Europe, as they are to us.

Another significant factor favoring U.S. metrication is the growth of multinational corporations with global operations. A common language of measurement facilitates communication and technology transfer and is the basis for international engineering and product standards. SI is becoming that common language and it is not surprising therefore that it is the multinationals that are in the vanguard of the U.S. change to metric.

Coupled with the growth in multinational operations is the increased importance of international commerce. Fifty years ago our exports were less than five billion dollars. Last year they were approximately \$100 billion, a twenty-fold increase. But while our exports have been growing, our market share has been declining in recent years. For example in 1958 the U.S. share of world exports of manufactured goods was 28 percent. By 1973 our share had been reduced to 18 percent, a reduction of 35 percent. In the 10 year period from 1963 to 1973 U.S. exports doubled in dollar value while Japan experienced a five-fold increase, Italy a four-fold

increase and West Germany, France and Canada increased their exports three-fold. The U.S. is still the industrial and technological leader of the world but our economic and industrial supremacy is slowly being eroded.

Finally, we are now operating in a favorable legislative climate. The overwhelming support in the House and the unanimous consent by the Senate for the Metric Conversion Act of 1975 demonstrates that Congress endorses a program of planned and coordinated conversion. Not only has Congress given its blessing, it has also authorized the establishment of the U.S. Metric Board "To coordinate the voluntary conversion to the metric system."

The U.S. Approach to Metrication

What is it that characterizes the U.S. approach to metrication? There are several features of our program that I consider to be significant. In summary these are:

- (1) Private sector initiative
- (2) Legislative endorsement
- (3) Voluntary program
- (4) No overall timetable
- (5) Democratic consensus approach

The impetus for metric conversion in the U.S. has come from the private sector, as President Ford put it, "From the people in the business of buying and selling American products here and overseas." Where conversion is proceeding, it is doing so for sound business reasons. The change is not being imposed by Government nor is Government impeding the change.

And now conversion is proceeding with the blessings of Congress. The issue of metrication has been openly debated and indeed few debates have spanned so many decades. As a result the legislation that has emerged has broad support and represents a fundamentally sound approach that is in the American tradition. The experiences of other countries attest to the desirability of a firm legislative base. The U. K. program for example has suffered from lack of clear Government support while the Australian program authorized by act of Parliament has proceeded successfully. Although the Canadian program has been proceeding under Cabinet approval, full parliamentary action may be necessary to bring the program to a timely conclusion.

In signing the metric bill President Ford stated, "It is important to stress that the conversion contemplated in this legislation is to

be a completely voluntary one." Americans should welcome this. Voluntary action is still preferred over Government mandate, and it is encouraging and refreshing to know that we face our third century as a nation with a continued dedication to voluntarism. Conversion in the U.S. has been proceeding on a voluntary cost effective basis as benefits are recognized, and there are practical economic reasons to convert. Metrication should be allowed to continue in this voluntary manner, and those segments of the economy that see no advantages in changing should have the freedom to adhere to current practices until they feel justified in converting. The fact that the U.S. metric program is a voluntary one, however, in no way lessens the need for proper coordination and planning.

Related to the voluntary nature of the program is the lack of an overall timetable. This has been an issue of particular concern and perhaps it is worth commenting on. In the U. K. a ten-year conversion goal was established but that goal has not been met. The Australian Act on the other hand did not establish a target date, yet their conversion is expected to be completed within eight years of its initiation. So establishing an overall goal does not guarantee results nor is it particularly meaningful. This does not eliminate the need to establish conversion dates for specific events; e.g., the changing of road signs, conversion of gasoline pumps, amendment of weights and measures laws, etc. The lack of clearly established dates and a well coordinated program in these areas would lead to mass confusion and unnecessary difficulties. The establishment of such dates however is not inconsistent with a voluntary program provided the dates are determined in a consensus manner. A good example of this is the Treasury Department's directive on the sale of wine in metric size containers. The directive was issued in response to requests from the wine industry and the effective date provides adequate time for the industry to comply with the directive without economic disruptions.

Another example of a sound approach to metrication is that of the Department of Defense. DOD is pursuing a policy of converting in phase with its industrial suppliers paying its fair share of the cost. While there is a stated preference for metric specifications for new systems, DOD is not prepared to underwrite a cost penalty and will mandate metric design only where justified. In its policy statement DOD makes it clear that it does not want to force the issue nor does it wish to inhibit conversion.

Perhaps the most salutary aspect of the U.S. metric program is the desire and willingness of so many sectors to voluntarily join together to address the issues and prepare for the change. The American National Metric Council (ANMC) is the embodiment of this private sector movement. A unique characteristic of ANMC is

that representation is not limited to special interest groups but rather is open to all parties interested in and affected by metrication. A look at our subscribers and our Board of Directors bears this out. Represented on ANMC's Board are small business; labor; consumers; the professions—education, architecture, engineering, home economics and law; and a diversity of industries—aerospace, auto, banking, brewing, building, communications, computer, electrical goods, lumber, machinery oil, office equipment, and retailing.

Our participative management philosophy works only because of the willingness of trade associations and technical societies to share the administrative burden with us. For example the Motor Vehicle Manufacturers Association, the Aerospace Industries Association, the National Forest Products Association, the Scale Manufacturers Association, and the American Association of Publishers just to mention a few hold secretariats of and administer the Motor Vehicle, Aerospace, Lumber & Wood, Weights and Measures and the Educational Materials Sector Committees respectively. All told, over 300 Associations from the Adhesive and Sealant Council to the Wire Association are involved in the work of ANMC. I know of no other organization that is so broadly representative.

The structure of the U.S. Metric Board, as specified in the Metric Act, is also designed to provide broad representation. After all, metrication is everybody's business, and no matter where we stand on the issue, we cannot afford to stand aside from the program.

Progress in Industry

What progress have we been making in this more favorable environment? There can be no denying that significant steps have been taken in recent years in certain sectors towards adoption of SI. This is most convincingly demonstrated through changing attitudes in key industries. It is interesting to read a statement made in 1959 by a leading automotive spokesman who said: "Even if the metric system were far superior to the English system, which it is not, and even if it were possible to enforce it by compulsory legislation, which it is not, the enormous cost of introducing it, the vast trouble and confusion it would cause during the transition period for at least two generations, the abandonment of our mechanical standards, upon which are based our present system of interchangeability of parts of manufactured articles, the making worthless of the greater portion of our technical literature, make the price too great to pay for any advantages, real or supposed, of the metric system."

By 1973 however the advantages to its global operations led to a formal commitment by GM to design all new products to metric

specifications. The Chevette, the first U.S. "metric automobile," is a result of that decision; and it is now generally acknowledged that the auto industry will be predominantly metric by 1982.

The steel industry provides another example. In congressional testimony in 1973 the American Iron & Steel Institute stated that the steel industry was opposed to metric conversion. Yet only two years later, in 1975 the major steel producers announced that they were ready to accept orders to metric specifications.

There are other bellwethers of a changing attitude towards metrication on the part of American industry. In responding to the Department of Commerce metric study in 1970 the National Soft Drinks Association stated that, "The Soft Drink Association has not uncovered any industry desire for use of the metric system." Yet five years later Coca Cola, Pepsicola and Seven-Up are marketing their products in metric size containers.

During the past year many companies began to address the metric issue and develop conversion strategies. Some issued public policy statements while others treated the subject as an internal matter.

Headlines from the Metric Reporter attest to the growing commitment:

General Tire Opens Wholly Metric Plant

Coke Marketing One and Two Liter Bottles

Lockheed Company Sets Metric Policy

Dow Packaging Pellets in 24 kg Bags

New IBM Components Have Metric Preferences

Metric Issues Emerging in Aerospace

Wineries, Distillers List Metric Benefits

Boeing Going Metric with Roland Missile Project

Pattern Industry Sets "Soft" Standards for Body Measure

NCWM Schedules Metric Program for Weights and Measures Officials

Metric Units Prevalent on Grocery Products

Metric Training for U.S. Indians

Metric Mobile Library in San Diego

Consumer Product Safety Commission Dual Dimensioning Standards, Specs.

California Water Department Starting Broad Metric Program

Huntington West Virginia Papers Go Metric

March Was Metric Education Month in Minnesota

FTC Guidelines for Metric Usage in Packaging

Drafting Supplies Move Towards Metric

Minnesota Adopts Metric Units in Drivers Manual

Metric Required in Michigan Schools in 1975-1976 School Year

NBS Sets Up Metric System Speakers Bureau

While many of these items could hardly be considered of major significance, the point is that they are concrete actions reflecting a trend.

Federal Agency Activities

The establishment in 1975 of a Federal Interagency Metric Committee provides focus for governmental activity. In a letter sent to all agencies earlier this year, the Secretary of Commerce urged them to designate a metric coordinator to work with the Interagency Committee.

The regulations issued by the Treasury Department requiring the sale of wine and distilled spirits in specified metric size bottles represents the first affirmative government action mandating conversion by an entire industry.

Another significant government action during the past year was the issuance of an interim metric policy by the Department of Defense. This policy, which is now in effect, reads in part "Effective immediately, the international metric system will be considered in the procurement of all supplies and services, and particularly in the design of new material."

The U.S. Office of Education recently announced the award of over two million dollars in education grants to support metric implementation at the State and local level.

On May 17 of this year the National Weather Service (NWS) started providing temperatures in both Celcius and Fahrenheit to the mass media over its weather wire service. NWS is actively planning other steps which will lead to the gradual conversion of all weather forecasting to metric units.

May was also the month in which the Federal Highway Administration issued a broad policy directive which, among other things, calls for the establishment of a tentative timetable for the conversion of traffic signs. The directive also calls for a one-year review of federal highway and transportation laws and regulations to determine conversion requirements.

State Activities

Prior to the enactment of the Metric Conversion Act, some States had initiated limited metric activities. However most States were reluctant to take definitive action until the intent of Congress had been established. Now that this has occurred, the States are preparing to play their role in the conversion program.

Governor Carey of New York announced that he would establish a New York State Metric Conversion Council to "make recommendations on the specific ways the coordinating powers of Government may be used to ease this (metric) transition."

Governor Ray of Iowa in his capacity as Chairman of the National Governors Conference has sent a letter to all State governors stressing the need for interstate coordination on metrication planning and implementation. He announced the establishment by the National Governors Conference of an Interstate Metric Committee and invited each governor to appoint a representative to this Committee.

The six New England governors have approved the idea of a Regional Council with related State Metric Boards to provide closer coordination at the regional level. The fact that this Conference of State weights and measures officials is dedicated to a discussion of the opportunities offered by metrication, further attests to the positive attitude at the State level.

State action relating to education has been extensive. As early as 1973 the Maryland State Board of Education adopted a resolution stating that "Maryland must be metric in all phases of public education by 1980." Last year the Illinois State Board of Education announced that SI units will become the official institutional language of measurement for public education in Illinois "not later than 1980." During 1975, the number of States that had adopted similar resolutions rose to 15, according to an NBS survey. All 50 States reported some level of metric activity.

Public Attitudes

No polls have been taken on the attitude of the general public to metrication. But from letters we receive at ANMC, it is possible to draw some not surprising conclusions. Let me quote from some of these letters.

"It seems absolutely foolish to confuse a whole country of great Americans by changing to a system this country doesn't need." (Hamlet, Indiana)

"I want to ask you if you can do your best in stopping the metric system because it is too hard for us and I don't want to switch over." (San Jacinto, California)

"And now you men want to make cooking a more technical culinary art. Leave we housewives alone to our own conventional system." (West Middletown, Pa.)

"Why do we have to change to the metric system in math when we have learned the other so well? My grandmother never heard of it. Will she have to go to school again?" (Honey Brook, Pa.)

"A change to the metric system at this time would be an economic boost ... I am a retired electrical engineer with an interest in all the sciences and in my country. Age 87." (Fort Lauderdale, Florida)

"We have the best monetary system in the world so let's keep it that way." (Clay Center, Kansas)

"My thought since first hearing about the possibility of a changeover has been why put it off—what are people afraid of? I'm in my 70th year. To me it's a challenge which I welcome. I'm inclined to believe that many who oppose the changeover, including manufacturing concerns, are afraid of the challenge." (Ogden, Utah)

"I think the whole idea of changing our system to metric smells." (Holt, Michigan)

Resistance to change is nothing new. It is human nature. Fear of the unknown is another human trait. Therefore to expect the public to be enthralled about the idea of metrication is unrealistic. Nevertheless I firmly believe that the American people will accommodate the change without great difficulty provided it is managed correctly. ANMC is very much concerned about the impact of metrication on the consumer and we recently established a Consumer Liaison Committee to ensure consumer involvement in metrication planning and to study ways to assist our citizens in making the conversion.

A One-Time Opportunity

Metrication as the title of this Conference implies is indeed a one-time opportunity. The change to metric measurements necessitates many related changes and in making these changes we have the chance to change to something better. Significant changes will occur in product and engineering standards and in measurement sensitive laws and regulations. Herein lies the opportunity. Willard F. Rockwell, Chairman of the Board of Rockwell International, recognized this when speaking for his corpora-

tion he said, "We can see considerable future advantages in the formulation and adoption of well-thought-out standards which can reduce the number of parts, tools, and gages required. These will produce more efficient designs and practices. They'll offer an excellent opportunity to 'clean house' by eliminating many near-duplicate sizes. And it is in that regard I believe overall national conversion to the metric system could be a once-in-a-lifetime opportunity for American industry."

Rationalization of product sizes is perhaps the single most significant benefit that can be derived from metrication, and it is encouraging to note that this is already being achieved. For example, fastener sizes will be reduced from 57 to 25 sizes; wine bottles, from 16 to 7 sizes; and distilled spirits bottles, from 10 to 6. But rationalization will not be easy to achieve in many cases. It will require industry and market-place discipline and short-term expediency will have to give way to long-term advantages and logic.

The rationalization opportunities that exist for products likewise exist for laws and regulations. In the case of weights and measures legislation, there is the opportunity to achieve greater consistency between state laws and in so doing to improve and simplify the law. The National Conference on Weights and Measures recognizes this opportunity and I have no doubt that you will do a service to the Nation by making this opportunity a reality.

THE METRICATION OF SEVEN-UP—THE LITER LEADER

Presented by BEN H. WELLS, Chairman of the Board, The Seven-Up Company



Although Congress made it legal for the United States to go metric in 1866, and this country signed the Treaty of the Meter, it wasn't until the National Bureau of Standards brought out its report in 1971, "A Metric America—A Decision Whose Time Has Come," that much was done about it. Progress toward metrication had been deterred by widespread ignorance and massive apathy on the part of business, government and the public.

Senator Russell Long was addressing a gathering of businessmen and made the statement that the two greatest problems of the day are ignorance and apathy. One man in the audience turned to his neighbor and said, "Do you believe that? Our biggest problems are ignorance and apathy?" Whereupon the other answered, "I don't know and I don't give a damn."

Your widespread efforts are increasingly resultful in the scourging of these two problems.

It was in September 1974 that we announced to our bottlers that 7UP would be the first soft drink to go metric in the United States. Little did I dream at the time that this would result in an invitation to tell the story to this eminent group of weighers, measurers and standard bearers. But a lot can happen in twenty-two months, and my purpose today is to tell the story of what resulted when 7UP metricated, or, as one headline writer put it, "7UP Goes Metric—UNcola to UNounce."

First, some background.

7UP, the soft drink I have devoted most of my life to selling, was created in October of 1929 . . . a great vintage year for champagne, but hardly auspicious for a new business venture. The original name was more of a mouthful than the product. "Bib-Label Lithiated Lemon-Lime Soda" was the first monicker. Talk about your truth in packaging . . .

But the product was a good one—a clean, clear, crisp beverage combining the essence of the lemon, a yellow fruit about 8 centimeters long and 6 centimeters in diameter with that of the lime, a green slightly smaller member of the citrus family.

For the next forty years 7UP did well enough. For sure, it was the number three selling soft drink—the only "light" shining from

the otherwise cola-dominated dark at the top of the carbonated stairs. But alas, people were drinking 7UP for all the wrong reasons. It mixed well with liquor, had some mysterious analgesic property that seemed to calm queezy stomachs and ease hangovers. Some even thought of it as a slenderizer. But there we were on the threshold of the Great American Fast Food Revolution, and, research showed, few thought of us as a soft drink. Coke and Pepsi were alone and dominant in their domain.

That was just nine years ago. Things are very much different today. A daring marketing program was created to position 7UP directly against the cola competition. 7UP became "The Uncola" mainly through a series of unorthodox television commercials that were fresh, irreverent and, frankly, quite risky.

The point is that not only was 7UP reborn a soft drink . . . a real glamor issue in the beverage world . . . the spirit of "The Uncola" crusade has had an abiding influence on just about everything the Company has done since then.

This one rather daring marketing program got our main product back into a growth trend, provided the impetus for some key acquisitions and, as a company, we've been growing ever since. 1975 net sales of the corporation exceeded \$213 million and profits were \$20.3 million, up from \$111 million sales and \$9.8 million profits in 1970.

Impressive as these achievements may be, they afford no guarantee for future growth. Nor did they make 7UP invulnerable to the packaging and materials cost squeeze that was the legacy of all beverage companies during the recent "Late Unpleasantness" otherwise known as the recession.

This led us in 1974 to a complete re-evaluation of our soft drink packaging situation. Our objective was two-fold:

1. To reduce packaging costs and thus ease pressure on our profit margins;
2. To project more positively the Uncola marketing image in our packaging.

Our technical people, working with a number of glass suppliers, developed a prototype for a new shape bottle that was not as tall as conventional glassware, contained less glass and would be less expensive, would perform better on our bottlers' production lines, and would better serve the consumer.

But there was a very serious question of how could a shorter bottle compete with a bottle of the same volume by the competition, given consumers' probable tendency to associate size with volume and thus value.

Up to that point, our considerations were restricted to conventional-sized vessels—sixteen-ounce, quarts and the like.

It was then the UNtraditional 7UP Uncola spirit surfaced . . . and a serious problem soon became a considerable opportunity.

The question was raised:

Why wouldn't metric-sized containers—half-liter and liter bottles—solve the height and size perception problem, thus converting the difference to an advantage in the marketplace? The trick would be convincing the consumer that he or she would actually be getting more 7UP in a shorter bottle.

We still weren't in a position to Un-ounce, however.

On the plus side, we could see several advantages. The opportunity to be first in the soft drink industry with metric was considerable. So was the timing—no longer was it a question of *would* America go metric, but *when*. Finally, there was the value concept—more product for the same money.

On the other hand, would a move to metric create more confusion than business for 7UP? Finally, and obviously not least, there was the whole matter of the cost of converting from what to that point was the conventional unit of measurement to another standard. Knowing that such a move would have an impact on bottling equipment, cartons and shells for take-home packs (as well as glass, of course), it was projected that an immediate total replacement of just the half-quart and quart sizes would cost The Seven-Up Company and our bottlers approximately 60 million dollars!

Consumer research cleared up our worries about consumer confusion. A survey conducted in May of 1974 indicated 82 percent of the general population was aware of metric weights and measures.

Similarly, overwhelming numbers of those interviewed professed belief that widespread use of the metric standard is inevitable in the U.S. Most questioned were favorably inclined toward the change, and an equally impressive number were familiar with the term "liter," the fact that it loosely relates with the quart and, happily enough, that it holds more than the quart.

We unveiled the new metric bottle in September 1974. Within seven months, the first metric soft drink bottles in the United States were introduced by the Minneapolis, Minnesota 7UP Developer—7UP and Sugar Free 7UP in liter bottles.

Liter bottles assured a marketing advantage, 33.8 ounces of product for the same price as competition's 32-ounce (quart containers).

The new packaging graphics, a liberal glass incentive program and a comprehensive marketing program combined to enable the Uncola to lead the way for other soft drinks . . . to follow the liter.

Interest in our initial metric announcement was overwhelming. Long before even one crystal clear drop of the Uncola materialized in a metric bottle, hundreds of newspaper, wire service and other stories appeared in markets coast to coast. 7UP was an overnight media celebrity . . .

. . . and the headline writers had a field day:

Neater Liter: Uncola for metric but U.S. still lags

Is Seven a Metric Number?

7UP Goes Metric: Uncola Undecimated

Take Me to Your Liter

To capitalize further on the situation and, hopefully to give added momentum to the metric movement, the Company has made comprehensive Metric Education Kits available to teachers throughout the U.S. Our initial order for 10,000 kits was a sellout and now we are backordering awaiting shipment on another 10,000. These include a teacher's edition of *The Metric System*, a classroom wall chart, a metric converter slide chart in the form of a liter bottle, measurement paste-ups, badges for height measurement and liter stickers.

7UP and Sugar Free 7UP in liter and half-liter bottles have been introduced in a total of 89 cities, including nearly the entire State of Indiana.

The whopper, a two-liter non-returnable, was introduced for the first time in February in New England and its general proliferation is not far behind.

There was one more metric milestone recently. I suppose it's significant as much for symbolic as business reasons, but on March 2, 7UP in metric-sized bottles was introduced in Atlanta. Our press conference, at the new Omni Convention Center, took place about 3 kilometers—yes, that is how the American National Metric Council says to pronounce it—3 kilometers from the world headquarters of the Coca-Cola Company, which announced earlier this year that it was authorizing metric packaging. As we said in our promotion, "Follow the Liter."

Finally, the mayor of one town that went metric last year was so delighted about it he renamed his city for one day . . . to Pens-Uncola, Florida.

Nice as the publicity and the industry leadership is, however, the proverbial bottom line must be the ultimate determinant of whether the move to metrics is proving worthwhile for 7UP. And I can tell you that our metric-sized bottles have exceeded the

projected sales that would have been achieved without the package, anywhere from four to fourteen percent. No doubt the novelty of the package accounts for part of the success, but the added value for the consumer is by far the main element.

Equally encouraging—and this may have implications for some of you—the metric conversion strategy adopted did not have nearly the price tag that was originally feared. Happily, I understand that's been the case with a number of companies, once they decided to take the step.

Thinking metric at The Seven-UP Company has not been limited to half-liter, liter and 2-liter efforts. Our 1975 Annual Report is, we believe, the first metric-sized publication of its kind, 20 by 30 centimeters.

This was another first in Annual Reports because it is scented with lemon. The *Wall Street Journal* ran this Business Brief: "Best Smeller? Seven-Up Company scents the pages of its annual report with a lemon fragrance." Incidentally, this process for putting fragrance into printing ink was developed at the Warner-Jenkinson Company—a Seven-Up subsidiary—as "Printscent," and is available in a variety of fragrances, including pizza.

Recently we learned that the trade publication, *Packaging Engineering*, will give its 1976 Total Performance Package Competition Award in the "beverages" category to the 7UP half-liter, liter and two-liter bottles. The seven requirements for total performance are:

1. Attractive, to win sales.
2. Strong, to withstand the rigors of distribution.
3. Engineered to run smoothly on the filling line.
4. Convenient, to use and dispose of.
5. Frugal in use of material.
6. Protective of product integrity.
7. Not harmful to our ecology.

The metric packages of 7UP won on all seven!

There has not been public announcement of this award. It will come out later this month in the August issue of *Package Engineering*.

What's the moral of the 7UP metric scenario? First, we believe strongly in timely conversion to metrics. Momentum for this

system has accelerated and just last week I learned it has the blessing of the Catholic Church. In a general mailing to friends of the Shrine of our Lady of the Snows in Belleville, Illinois, replies are encouraged through the offer of a metric converter ruler which provides information similar to that included on the 7UP metric converter you saw today.

The move to metric is on and we believe it is only fitting that a product that has achieved considerable success once by improving the King's English—and, of course, by that I'm referring to the term Uncola (which we coined and trademarked) that the same company should play a role in the undoing of the King's own measuring system.

METRIC TRAINING SEMINARS

Presented by JOHN H. LANDVATER, President, and
MARGO PERKINS, Associate, Landvater Associates



It is with a great feeling of accomplishment that we report to you today on the completion of the first phase of metric training of weights and measures personnel.

At the 60th annual Conference on Weights and Measures, the Committee on Education, Administration, and Consumer Affairs, recognizing the rapidly approaching need for metric training of weights and measures personnel, directed the executive secretary of the Conference to secure funding and develop a uniform metric training

program for the United States. That action ultimately led to the contract which has provided the first phase of that training, and on which we will report today.

Funding for the past year's effort was secured from the U.S. Office of Education under Public Law 93-380. Contractors were sought when it was determined that the National Bureau of Standards did not have personnel available to handle the program.

Since no specifications were available for the program and, in fact, the development of such a program could not be reduced to specifications for competitive bidding, technical qualifications were the basis for choosing a contractor. The Department of Commerce advertised for qualified contractors; and after evaluating the respondents, Landvater Associates was chosen as the contractor.

The contract was written, and I quote, "to develop and conduct metric training seminars for high level officials in private industry and local, State and Federal Government agencies." That contract is now completed and it has accomplished:

1. The development of a model for metric training in the United States for weights and measures and other government agency personnel.

2. Testing of the model program on a sufficiently large sample of participants to prove its effectiveness.

3. Training of a core group of instructors throughout the United States in the use of the model program.

4. Equipping the trained instructors with basic teaching materials necessary to conduct metric training within their individual jurisdictions.

The timeliness of this activity—the first training seminar in this series was conducted only a few months after the Metric

Conversion Act of 1975 was signed into law)—has placed weights and measures and the National Conference on Weights and Measures in the forefront of metric conversion activities. To maintain that position, additional core group instructors must be trained; second-round training by core instructors must begin in local jurisdictions; and some additional teaching aids should be provided to the core instructors.

Ancillary to the main thrust of the contract, it has become apparent that a well conceived and carefully thought out plan for metric conversion needs to be developed by the National Conference on Weights and Measures. Not only are the future training needs complex, but other activities in metric conversion in which the Conference is involved need to be coordinated with training in a well ordered manner.

Our report today will give details of the model program developed, the manner in which the six training seminars were conducted, quantified results of the seminars, conclusions drawn from those results, and recommendations for future action.

While the contract was issued by the Department of Commerce and administered by the Office of Weights and Measures at the National Bureau of Standards, the participants and beneficiaries of the activity are the members of the National Conference on Weights and Measures. Therefore, recommendations for future action contained in this report are directed to the National Conference as the logical entity to implement those recommendations.

To explain the course preparation and course content, I will turn the program over to my associate, Margo Perkins. Margo has participated with me in the preparation of the course content and in the instruction of all of the seminars.



The first steps in course preparation were (1) to identify the primary purpose of the course, (2) to identify the sector of the weights and measures community that would be invited to attend seminars, and (3) to identify secondary objectives based on individual needs of the course participants.

Working closely with the National Conference executive secretary Harold Wollin and his staff at the National Bureau of Standards, we determined that the primary purpose of the course was to train a selected group of weights and measures officials who, in turn, would provide SI metric training programs for other weights and measures personnel.

We recognized that seminar participants would vary widely in their knowledge of SI metrics, in their experience in conducting training courses, and in their access to resources needed for training purposes.

With these factors in mind, fifteen specific course objectives were defined. These can be summarized as follows:

Provide background information and general knowledge of SI metrics needed by instructors.

Provide information and experience in using various instructional strategies for teaching SI metrics.

Prepare seminar participants to organize metric training programs for weights and measures personnel.

Provide information on available resources for training materials and for responses to public inquiries.

Prepare weights and measures officials to participate in the planning process for metrication.

Organize and conduct a seminar which participants could use as a model for seminars they organize.

To meet these objectives, we developed an 18-hour course of instruction designed to be taught over a 3-day period. The seminar schedule is listed in the final report submitted to the National Bureau of Standards by Landvater Associates. Copies of this report will be available at the conclusion of this session.

Over one half of the instructional time was allotted to "hands on" workshop activities. Using worksheets and simple measuring equipment, participants were guided to the discovery of simple relationships between everyday SI units used for length, area, volume, capacity, mass, and temperature measurements. From the first day, seminar members were encouraged to "think metric." Repeatedly, they were asked to estimate metric measurements, then measure and check their estimates. Many activities were structured around field procedures used by the weights and measures community.

Other portions of the course were devoted to the identification of special metrication concerns of the weights and measures community. Members reviewed elements of classic planning processes and then began to develop plans for the orderly implementation of metrication within their respective jurisdictions. Throughout the course, activities were designed to allow opportunities for members to exchange information.

A variety of teaching techniques and materials were used in the seminar program. Each participant received a complete set of the teaching materials, including clean copies of worksheets, transparency masters and selected reference sheets that can be reproduced as needed. Style guides, measuring equipment, selected NBS publications and extensive lists of metric resources were also distributed. Ten to eleven boxes of materials were shipped to each seminar site; only three remained to be shipped back at the end of a session.

In every phase of planning and conducting the seminar, efforts were made to provide training sessions which would develop positive attitudes toward the study of SI metrics. The responses of seminar participants indicate that the program does indeed accomplish this goal.

by JOHN LANDVATER

Six seminars have been conducted at locations across the United States. The locations were chosen to reduce travel as much as possible for the participants. We hoped to have at least two persons attend from each State, but realized that travel costs would be a problem in some cases.

The locations and dates of the six seminars were:

Hopkins, Minnesota—March 3 to 5 (to coincide with the North-west Conference)
 Atlanta, Georgia—April 7 to 9
 San Francisco, California—May 19 to 21
 Hershey, Pennsylvania—June 2 to 4
 Denver, Colorado—June 9 to 11
 Indianapolis, Indiana—June 16 to 18

Attendance at each seminar was:

No. 1 Hopkins, Minnesota	24
No. 2 Atlanta, Georgia	23
No. 3 San Francisco, California	31
No. 4 Hershey, Pennsylvania	34
No. 5 Denver, Colorado	25
No. 6 Indianapolis, Indiana	<u>26</u>
Total	163

As was expected, the Hershey seminar had the greatest attendance because of the dense population in the North East. The Office of Weights and Measures recognized that this could present a problem as early registrations began to come in. We did not want

to turn anyone away who wanted to attend one of the seminars. Partly to solve that potential problem, and partly to provide the same opportunities to other government agencies, two additional seminars have been scheduled. They will be held at the National Bureau of Standards; one in September, and the second in November.

Attendance by the States was spotty. Some States sent a large number of registrants; others, only one or, in some cases, none.

It is quite obvious that adequately trained core instructors now exist in some States, but additional core training is necessary in other geographical areas.

Results

The seminars were evaluated in two ways:

1. Each participant was asked to complete a seminar evaluation form at the end of the seminar. In that way, the participants gave us their evaluation of the effectiveness of the seminar in a structured manner which could be quantified.

2. Each participant was given a pre-test at the beginning of the seminar, and the same test [was given] as a post-test at the end of the seminar. A comparison of the two tests gave us information on how much new knowledge was gained by the participants in the seminar.

The participant evaluation contained 18 questions which required a numerical score and which related to the various objectives of the seminar. Each participant was asked to evaluate the effectiveness of the seminar in meeting the objectives outlined for the course. They used a rating scale of one, the lowest rating, to five, the highest rating. We considered a rating of either four or five to be an acceptable rating on any question, and tabulated the percentage of participants who gave a rating of either four or five on each objective as follows:

1. Provide background information on SI metrics needed by instructors	76.5%
2. Provide information and expertise in using varied instructional strategies for teaching SI metrics	79.7%
3. Prepare seminar participants to organize metric training programs	75.0%
4. Provide information on available resources for weights and measures courses and for informing the public	90.0%

- | | |
|--|-------|
| 5. Prepare weights and measures personnel to contribute to the planning process for metrication | 75.6% |
| 6. Organize and conduct a seminar which participants could use as a model for seminars they organize | 97.0% |

The pre-test and post-tests were compared and scored for gain in number of items missed on the pre-test but answered correctly on the post-test. Final tabulations showed that the average gain in number of correct answers for the post-test was 10.8. Since the test had a total of 55 items, this represents an average gain of 19.6 percent for the group.

Interpretation of Results

The very high percentage of the participants who rated a score of four or five for each of the objectives of the seminar shows this to be a good basic "model program" for training instructors who will be expected to run additional training seminars in their jurisdictions.

The gain in knowledge of SI metrics indicates that the activity worksheets and the workshop content and approach is a proven way to teach SI metric information. The nearly 20% gain in SI metric background information is a more dramatic gain than might first be thought if the following factors are not considered.

Many of the participants were State metrologists, where their pre-tests were almost perfect, showing nearly a perfect understanding of SI metrics before the seminar.

The workshop sessions, where SI metrics was really learned, were deliberately kept short in order to allow time for presentation of other materials. With more time for workshops in second-round training, the gain in knowledge of SI metrics will be more dramatic.

A model program now exists which can be used in many ways for future training. The model program can be taught by core group trained instructors in government; it can be the basis for competitive bidding for instruction by professional persons under contract; and it can be a program taught in adult education programs such as community colleges, junior colleges, vocational schools, and high school extension courses.

Conclusions

1. Pre-test and post-test results for all seminar participants, and the participants' evaluations of the various aspects of the seminar program, are very high in all areas. The program is a good "model program" for metric training of weights and measures personnel.

2. While attendance at the seminars was predominantly from the weights and measures community, persons from other govern-

ment agencies also attended. Their gain in SI metric knowledge and their rating of the value of the seminar as a training tool was equal to the rating by weights and measures personnel. Therefore, this could also be considered a good "model program" for metric training in other government sectors.

3. There is still a need for more core group instructor training, as some geographical areas of the United States had very few or, in some cases, no attendees at the training seminars.

4. While participants left the seminars with a complete set of teaching aids and adequate reference material, there is a need for some additional audio-visual material as reinforcement for the instructors as they begin to hold second-round training programs in their own jurisdictions.

5. During the first-round series, some of the participants needed more time for basic decimal arithmetic and practice with the metric prefixes than the schedule would allow. The second-round training programs will need to spend more time on the workshop sessions and should remain with the basics until completely mastered by the participants.

6. The metric conversion presents a unique opportunity for weights and measures to raise its public image. The leadership position which has been created by the timeliness of this seminar series will be lost if not promptly followed up with further effort.

7. Future training efforts must be coordinated with other metric activities and scheduled so that final field training will coincide with the time when metric units will be used in the day-to-day activities in the field. Careful planning will be required to accomplish this goal.

Recommendations

1. Affirmative action should be taken by the National Conference on Weights and Measures to endorse this "model program" as their basic uniform metric training program.

2. A comprehensive, long-range metric conversion plan should be developed by the National Conference on Weights and Measures to organize and schedule the many aspects of metric conversion in which the Conference is involved, training being only one of the major activity areas.

As a part of the long-range planning, provide for:

1. The additional training needed for core group instructors in geographical areas not now well staffed,

2. The beginning of second-round training in the various jurisdictions, and

3. The additional audio-visual support materials needed by the core group instructors.

I stop here with our report on the metric training seminars with the very distinct feeling that I have only been able to expose the tip of the iceberg. To quote the theme of this Conference, "Metrication—A One-Time Opportunity" is an opportunity for improvements in measurement, in standards, in virtually every aspect of our lives. But at the core of that opportunity is an informed population, and that is what we have been attempting to begin with the metric training programs; and because training and education lead directly into all the many areas of concern in metrication, I am sure many of you have other points you want to discuss which we have not touched on here this morning. At this time, we invite your comments or questions on points which need further clarification by either Margo or me.

AFTERNOON SESSION—TUESDAY, JULY 13, 1976

(LORENZO A. GREY, *Vice Chairman*, Presiding)

A BACKGROUND FOR UNDERSTANDING SAMPLING PLANS

Presented by MARY G. NATRELLA, Mathematical Statistician,
Statistical Engineering Section, Applied Mathematics Division,
Institute for Basic Standards, National Bureau of Standards



It is a pleasure to be here and to see friends from previous July Conferences and from the January committee meetings. This Conference does many things right, but there is one thing it does wrong—it always comes to Washington at the worst time of the year. In between the steaming Julys and the January sleets, I work with the people in the Office of Weights and Measures. We try to hash out the realities of sampling inspection as they pertain to the realities of net-weight checking. During one

of our sessions, I remarked that there are things the statisticians know so well that they have never bothered to tell anyone else—in particular, no one ever gives “Lesson One” in acceptance sampling. This is what they have now asked me to do.

Naturally everyone thinks they know Lesson One. If you do not, it is because no one ever told you. People tell you about single sampling and double sampling, and people tell you about attributes and variables, and about MIL-STD-this and that, but hardly anyone tells you what a sampling plan is, what it is intended to do, or how it does it.

Of course, we all know that a sample is intended to give us some more-or-less good idea about a larger quantity of material. By now you probably realize that when a statistician speaks about “a sample,” he means not just a single package, but the whole collection of packages taken for checking. But what is a sampling plan? The naive answer is “Take ten—or however many.” In actual fact, a sampling plan dictates more than just how many.

What Is A Sampling Plan?

A sampling plan is a set of very specific rules. Actually, there are three kinds of rules: (1) rules for taking the sample, (2) rules for making observations on the sample, and (3) rules for making decisions based upon those observations.

1. The Rules for taking the sample:

The sampling plan tells you how and how many.

The *how* is important as well as the *how many*. In weights and measures checking, we ordinarily want to have a random sample. We usually gloss over this in a couple of words, leaving it to the inspector's notion of what is a random sample, which may be more haphazard than random.

If we provide detailed instructions for obtaining a random sample, we may be told that the rules are physically unworkable or too time-consuming. Maybe they're thought to be just plain silly. Nevertheless, the *how* is important; and in ignoring this, we may be taking chances with the results. A famous statistician has said that randomization is like insurance. You may not really need it, but you never really know whether you do or not. Also, it may be too expensive, but make sure it's really too expensive, and not just a nuisance. You have an obligation to try to obtain a random sample, and you may have to prove to the courts that you tried.

How many

This is the only part of a sampling plan that some people recognize—to them the only rule is how many. It is a very important part of the rules. It has a big effect on how well the sampling plan does what it is intended to do—but the decision rules also have important effects.

By the way, I think by now you have all been told that the important consideration is the absolute size of the sample—(how many?)—and not the size of the sample relative to the size of the lot (what percent?).

2. Rules for making observations on the sample

These rules tell you what to look at in each sample package. You might simply check whether or not the package was above or below label weight (by putting the label weight on one pan of the scale). The rules also tell you what additional things to do with your observations. If you had simply recorded whether each sample package was above or below label, you could be told to count the number of underweight packages. If you have weighed each package in the sample, you might be asked to calculate the average weight, and perhaps perform further calculations.

3. Rules for making decisions based on the observations

The sampling plan now tells you what “decision” to make, based on the results of the observations and calculations. I say “decision” in quotes, because in the small sense you don't really decide

anything. The decision is automated—it is made for you by the rules given in the sampling plan. If you were in a more typical acceptance sampling situation—for example, military procurement inspection—you would now have to either accept or reject the lot. For net weight checking, we can use the words “accept” and “reject” in quotes because you do have some discretion. “Accept” probably means you’ll do nothing more, but “reject” could mean a variety of actions—order off-sale, check the whole meat case, tell your supervisor that you would like to check more of XYZ product, etc.

So, a sampling plan contains three kinds of rules, but—

What Does A Sampling Plan Do?

A sampling plan does what we want it to do. I should not try to put this in legal terms in the presence of so many lawyers, but it is the only way I can really understand it. Essentially a sampling plan provides evidence, trial, and sentencing for the material being inspected.

First, we have a law (or a requirement). You have the Model Packaging and Labeling Regulation—or your own individual state law. In order to provide *evidence* that the law or requirement has been met, we use a sampling plan. A sampling plan acts like our whole law-and-order system. It is an automated combination of police department, judge and jury. It obtains the evidence, it judges the evidence, it sentences the material.

Since a sampling plan is intended to provide evidence as to whether the requirement of the law has been met, the kind of sampling plan depends on the kind of requirement. So let’s consider some common varieties of requirements. For example, we could have:

1. a requirement for an individual package
2. a requirement for the average of a lot
3. a requirement for average of a lot *plus* a requirement for an individual package.

You will recognize that all of these have been talked about in connection with net-weight checking, and that the last one is exactly the kind of requirement we have in the Model Regulation.

We now talk about the kind of enforcement (the kind of sampling plan) appropriate to each of these requirements. It is important to recognize that the law and the sampling plan are necessarily linked. So that if someone some day says to you, “Well why don’t you just use MIL-STD-105?” You just tell him, “MIL-STD-105

does not enforce an average requirement—nor does MIL-STD-414.” No requirement can be perfectly enforced by sampling. It is no more possible to have perfect assurance about the average of the lot than it is to have perfect assurance about individual packages. All sampling plans have risks.

Let’s talk more specifically about:

1. Requirement on an individual package.

The requirement might state that each package be at least the label weight.

A sampling plan could be used to enforce this requirement with certain associated risks (which we’ll get to later). What kind of sampling plan? The kind that is called “Sampling Plans for Attributes Inspection to Control Percent Defective”—the kind of plans that MIL-STD-105 is full of.

Remember that any sampling plan has three kinds of rules and let’s look at this kind of sampling plan.

(1) Rules for taking the sample (how and how many).

Select X packages at random (X = some specified number)

(2) Rules for making observations.

Compare each package to label weight. Count how many are underweight. (We could have a variation here about counting how many are underweight by a specified amount.)

(3) Rules for making decisions.

If more than some specified number of the X packages are underweight, “reject” the lot.

The mathematical statisticians know all about this kind of sampling plan. It is nice and neat in theory and in computation, and there are books full of them.

2. Requirement on the lot average

Suppose the Model Regulation were a bit simpler and required the lot average to be at least equal to the labeled weight. Again, remember our rules:

Rule (1)—tells us how and how many

Rule (2)—tells us what to observe and calculate

Here we would be asked to weigh each package in the sample; to calculate the average of those weights (plus possibly some calculation of the variability among the packages).

Rule (3)—We would now compare our calculated value to a number given in the rules. This number could be the labelled weight, but could be different from the labelled weight, depending on how the sampling plan was designed.

If we make certain assumptions about the packing process, this kind of plan is also easy for the statisticians to work out. You won't find books full of these labelled as sampling plans; you have to dig around a bit in the statistics books. Again, note that there are associated risks and that the requirement cannot be perfectly enforced by the sampling plan. The fact that the sample average exceeds the label weight does not guarantee that the lot average exceeds the label weight.

3. Requirement on the lot average plus a requirement on an individual package.

This is the kind of requirement that is in the Model Regulation and probably the kind most familiar to you. Since it is familiar, it probably sounds easy. Actually, it's not. Sampling plans to enforce this kind of requirement used to give statisticians fits because it is a tough one mathematically. Since we now have computers, it is no longer so frustrating—only expensive—to compute the properties of such plans. And, of course, this kind of requirement has a great deal of intuitive appeal—protecting the public at large on the average, and protecting the individual buyer. These plans are being looked at in other connections—especially product safety areas—because of this kind of appeal.

A bit earlier, I said that a sampling plan does what we want it to do. *How do we define what we want a sampling plan to do?* A sampling plan cannot give us perfect assurance about a lot, because we examine only part of the lot. If the assurance has to be less than perfect, how good can it be? Or, how bad? In this connection we talk about the risks associated with a sampling plan. A particular plan can be defined by these risks. There are two opposing kinds of risk—the risk of rejecting a lot which meets the Model Regulation (or some other), and the risk of accepting an underweight lot. Naturally, we would like them both to be small in fairness to both the packer and the consumer.

What we would really like is a sampling plan which gives a very good chance of acceptance when the lot is equal to or over the label weight and a very good chance of rejection when the lot is even slightly underweight. Unfortunately, while this is possible, it requires *large* samples. So now where are we? Given that we want to use a relatively small sample for routine checking, what can we do or say about these risks? If we give a high chance of passing a lot that is exactly at the legal limit, we're not doing too well on behalf of the consumer. If we give a high chance of failing a lot

that is only slightly underweight, we'll be requiring too much overpack. For this reason, many sampling plans for weight checking attempt to sort of split the difference with regard to the two kinds of risks. Packers realize this and recognize that some overpack is required to avoid excessive rejections. The alternative of weighing large samples would haunt packers as well as the rest of us with visions of opened cans spread across the land. I witnessed one inspection where the opened cans of beans were put in the deli—but what do you do when there is no deli?

The calculation of risks for a particular sampling plan will depend on the “how many” and on the decision rules. Many sampling plans for weight checking require that the average of the sample equal or exceed the labelled weight. That particular decision rule implies a particular value of risk.

What I have been trying to do here with only words can actually be done with mathematical statistics. The results of such mathematics can be displayed using something called an Operating Characteristic Curve which shows the operational properties of a sampling plan. You may have seen some of these, but I won't display any here. For one thing, this is not that kind of a talk. For another, I don't think one should take them too seriously when talking about inspecting occasional lots. They really apply to the steady inspection of every lot in a continuous series of lots, and even then they give only an idea of what to expect.

Where does the inspector come in? I have tried to show the kind of thinking that goes into designing a sampling plan. I have said that a sampling plan tells much more than just how many in the sample. The rules for taking the sample and deciding whether the lot is acceptable are also part of the sampling plan. What does that leave for the inspector to do?

(1) How to take the sample.

If formal rules are given for obtaining a random sample, and if it is physically impossible to follow these rules, the way the sample is actually obtained will be up to the inspector. I would urge him not to abandon or denounce the rules lightly, but to use his ingenuity to apply them. Where he has to abandon the rules—where it is really impossible—the more he knows about the product, the better. How it is packed, how it is shipped or stored, and what inventory policies are followed, all these things determine whether the actual sample may be “as good as” a random sample for the purpose of weight checking.

(2) How many—he follows the sampling plan; he may have some directed or guided choice of sampling plan.

(3) The observations on the sample and calculations on those observations are specified by the plan, but entirely done by the inspector.

(4) A decision to “accept” or “reject” is given by the sampling plan—but “accept” and “reject” are in quotes. The inspector may recommend more inspections or other actions.

Whatever the rules, they must be carried out properly. As Allen Farrar said last year, “People make the difference.” We can have all kinds of lawyers writing laws, engineers writing procedures, statisticians designing sampling plans, but it’s up to the inspector to make the system work. The most important person is the one who is out there. We rely on you.

NATIONAL CONFERENCE OF STATE LEGISLATURES

Presented by TOM JENSEN, President, National Conference of State Legislatures



It is a great pleasure for me to be here today and to speak to you as the President of the National Conference of State Legislatures (NCSL). Our own annual meeting will be held in Kansas City late next month, so I guess you are fortunate to have invited me before my term as NCSL President expires. Since our meeting is in Kansas City, we will feel fortunate if there is anything left there at the end of August, after the Republican Convention, scheduled just two weeks before us.

Bud Wollin has asked me to tell you about the organization and objectives, and programs and services of the National Conference of State Legislatures, and to suggest ways in which our two organizations can work together for our mutual benefit. He has suggested that weights and measures officials throughout the nation have, on occasion, had difficulty getting their message across to, and obtaining support for, their programs from some State legislators in several of the States. I will give you some of my ideas on how you can each approach that problem in your own individual States, and how some of the existing mechanisms and committee work in the National Conference of State Legislatures might lend itself to communicating your ideas to State legislators and their staffs.

First, a few words about the National Conference of State Legislatures itself. It was established just a year and a half ago, in January 1975. NCSL was created from three previously existing legislative organizations: the National Legislative Conference, the National Conference of State Legislative Leaders, and the National Society of State Legislators. We are affiliated with the Council of State Governments (CSG) and cooperate with its staff, but we have our own offices, meet independently, do independent research focused on legislative problems, and provide our own informational and training services. Another important difference is that unlike CSG, we are set up to lobby for State legislatures in Washington, D. C. The NCSL has three basic objectives: to improve the quality and effectiveness of State legislatures; to assure States a strong, cohesive voice in the Federal decision-making process; to further interstate communication and cooperation.

NCSL has two offices. Our Headquarters office in Denver, Colorado houses our Director, Earl S. Mackey, and his administrative staff and several important line divisions. The largest is our State Services Division, which is designed to help State legislatures continue to upgrade their ability to make effective public policy. Members of the State Services staff make periodic visits to all fifty State legislatures. They bring together legislative experts to assist a particular legislature on a variety of issues. State Services, for example, assisted in improving the bill-drafting process in Nevada and the budgetary process in Delaware. In both cases, legislative staff personnel from other States were brought in to provide insight and make constructive recommendations. State Services is routinely involved in legislative information seminars throughout the States, and staff members participate in pre-session conferences across the nation.

In order to help avoid unnecessary duplication among States, the staff collects, indexes, and distributes titles and descriptions of research studies in progress among legislative research staffs. State Services collects completed research reports from State legislative councils and circulates abstracts of these reports. In addition, State Services responds to requests from legislators and staff for information concerning State activities in both legislative procedural and substantive policy areas.

State Services also provides assistance to various legislative staff groups. The nine staff sections organized within the NCSL include policy research staff, librarians, legal services staff, leadership staff, fiscal officers, post auditors, program evaluators, services and security, and clerks and secretaries. State Services helps these groups plan their programs for the NCSL Annual Meeting; it assists them in running their training sessions; and provides a number of other services which the groups request.

NCSL's Training and Development Service provides the only national training forum for State legislators and their staffs in the country. Training topics for seminars are selected by members of the State legislatures and their staffs through the NCSL Training Committee. Fifteen to twenty training sessions each year center on key issues such as medical malpractice, legislative oversight, and legislative review of administrative rules. Seminars are held for legislative leaders and for staff sections, including clerks and secretaries, services and security, and fiscal analysis.

Special assistance is available to individual legislatures for developing training and development activities in their own houses. The Training staff will assist legislatures in conducting legislative orientation programs and special seminars on key State legislative issues, and establishing instate training services for their legislatures.

NCSL's Washington Office of State-Federal Relations is the Washington lobbyist for the nation's 7,563 State legislators. Legislative and program specialists in the office screen the thousands of bills, regulations, proposals, and trends in Washington. Lawmakers in the nation's 50 statehouses are kept informed through *Dateline Washington*, a weekly newsletter, and *Washington Report*, a more detailed analysis of specific issues. Action is taken by Washington Office specialists based on the policy positions and strategies approved by the National Conference itself, NCSL's Intergovernmental Relations Committee, and the Committee's eight task forces.

The basic purpose of NCSL's Washington staff is to ensure that the voices of State legislatures are heard and heeded throughout the halls of Congress and within the Federal bureaucracy. Federal officials too often act as though governors are synonymous with State government. They give too little thought to the policy-making role accorded to the 50 State legislatures. Through NCSL, State legislators are having a greater impact in Washington. NCSL task forces and a State-Federal relations staff monitor Federal legislation, assessing its effect on the States.

The officers of NCSL's Intergovernmental Relations Committee (IRC) and the Committee's task forces provide policy directions to the State-Federal Relations staff. The specialists on the Washington staff work closely with State legislators appointed to the IRC's eight task forces—Community Affairs and Transportation, Criminal Justice and Consumer Affairs, Education, Energy, Food Supply and Agriculture, Government Operations, Human Resources, and Natural Resources. At meetings throughout the year, the task forces analyze State-Federal issues in their respective areas, assess their effects on the States, and develop policy recommendations. Once approved by both the full IRC and the national membership at the Annual Meeting, these positions become official NCSL public policy.

Many of these positions call for congressional action, or new directions by the President. Taking its cue from a strongly-worded policy resolution approved at last year's Annual Meeting, for example, the Government Operations Task Force mounted an extensive lobbying effort to spur Congress to promptly renew all of the general revenue sharing program. In that effort, NCSL lobbyists in Washington met with House and Senate committee members and arranged for legislators to testify on Capitol Hill. They participated in a national coalition of the State and local government organizations which have, based on the member-approved public policy of each organization, agreed on the substance for more than a dozen elements of the general revenue sharing

program, as well as a strategy to see it reenacted. The House passed that legislation on June 10.

Increasingly, NCSL's Washington office is called upon by congressional and Federal officials, including the office of the President, to provide information on the attitudes of State legislators toward proposed Federal legislation or regulations. At the requests of the Special Assistant to the President for Intergovernmental Relations, for example, NCSL's Washington staff assisted in the development of the Administration's four block grant proposals, reviewing and commenting on the initial outline of each program and the draft language of each bill.

In its liaison role between State legislatures and the Federal executive agencies, the Washington staff also receives proposed agency regulations for review and comment before they are published in the Federal Register. Often, existing NCSL public policy will enable the staff to respond immediately to a proposed regulation. But where there is no existing Conference policy, or where the staff is in doubt, State legislators and legislative staff throughout the country are called upon to review the proposed regulation and provide their best advice on the impact it would have on their State programs.

Through the Washington office, Federal officials can better cooperate directly with State legislators. The National Institute of Education has given NCSL a \$110,000 grant to be distributed to four State legislatures to conduct studies on their own school finance systems, the Secretary of HEW, David Mathews, recently contacted me for assistance in developing a Human Resources Forum—a mechanism to elicit input from State and local officials on major human resources policy issues.

State legislators are often invited through NCSL to accept appointments to committees or panels advising the President, Congress, or cabinet officers. Examples include the Advisory Commission on Intergovernmental Relations; the House Ways and Means Health Subcommittee's Advisory Panel on National Health Insurance; the Attorney General's National Advisory Commission on Criminal Justice Standards and Goals; and the Federal Energy Administration's Advisory Committees on the Environment, on Consumer Affairs and Special Impacts, on Electric Utilities, and on State Regulation.

That pretty much summarizes the line operations of NCSL. I should add that, in addition to our Washington publications, focusing on federal activities, NCSL has an excellent major publication which we call *State Legislatures*, providing legislators and staff with in-depth articles on major issues facing State legislatures. We publish *State Legislatures* eight times annually, and it

has a circulation of 12,000. I hope some of you have seen that magazine.

Let me turn now to NCSL's committee and special project activities which I think would be particularly pertinent to problems on weights and measures.

First is our Office of Science and Technology, operated out of our Denver Headquarters office. Recognizing that State legislatures are now facing the problem of formulating highly technical and complex policy in areas such as land management, energy resource development, and mass transportation, we felt that it is important for States to have at their disposal a variety of scientific and technical resources.

The Office of Science and Technology provides: assistance to State legislatures to develop and strengthen their own science and technology resources; an individualized answering service and comprehensive policy analysis of critical scientific issues facing State governments; technical assistance to aid States in carrying out Federally mandated programs such as the Safe Drinking Water Act.

During the past year, the Model Interstate Scientific and Technical Information Clearinghouse (MISTIC) was initiated primarily to assist legislators to locate outside sources of information. These sources are usually found with Federal agencies, and also with universities, private industry and other States. Requests to MISTIC have ranged from an Oklahoma query for information on tick eradication programs to requests from several States on the transportation of hazardous materials.

The Office of Science and Technology maintains direct contacts with agencies such as the National Bureau of Standards, the Department of Transportation, the National Science Foundation, and the National Aeronautics and Space Administration to integrate State research and development needs into Federal programs. The S&T staff have also sponsored workshops on topics including States' role in management of radioactive materials and the impact of energy development on Western water resources.

The office functions under the direction of NCSL's Committee on Science and Technology.

The second, and really third, areas that might be of particular interest are those two Task Forces staffed out of our Washington Office that deal with (1) Energy, and (2) Food Supply and Agriculture. I know, for example, that Bud Wollin has expressed his concern to our staff about the difficulty of measuring moisture in grain and of designing devices to accurately make such measurements. I am confident that in some areas, like this, there will be some mutual concern with the members of our Task Forces

dealing in areas like agriculture, which lend themselves to more technical problems.

Finally, let me give you some suggestions for getting your message across to State legislators in your States.

At the outset, I would ask how many of you have directly contacted your State legislators and their staffs to tell them what you want them to know, and to ask for their help in those areas where you have major concerns. I am constantly amazed at questions I get from people like corporate lobbyists, who ask things like: "Can I just call on a State legislator and sit down and talk with him?" Of course, they can, and you can. So I would first ask you—Have you tried the direct approach?

Secondly, though—and this should probably come first—have you thoroughly developed your message? What I am getting at here is that State legislators, like you, I am sure, are very busy people. This is particularly true during a two or three or five month legislative session. They will be happy to see you and talk with you about real concerns and immediate problems. But obviously it is up to you to be sure that the message is clear and concise. If you have an immediate concern that affects the public interest, and you approach your State legislators directly with a clear description of the problem and the solution you are suggesting, I think you will receive the attention and support of your State legislators.

NATIONAL VOLUNTARY LABORATORY ACCREDITATION PROGRAM

Presented by GENE A. ROWLAND, Chief, Standards Application and Analysis Division, Institute for Applied Technology, National Bureau of Standards

Good Afternoon, Ladies and Gentlemen.



I certainly welcome the opportunity to address this group of weights and measures people in regard to the new Department of Commerce's "National Voluntary Laboratory Accreditation Program" referred to us and others now acquainted with it, as "NVLAP." In addressing NVLAP, it is appropriate to first acquaint you with the Department of Commerce and the National Bureau of Standards organizational structure from the Department to the main af-

ected operational units; second, highlight some of the background; third, describe the basic goal and purpose (of the program); fourth, outline the Federal Register notice and important parts; and, last, describe the present state of activity.

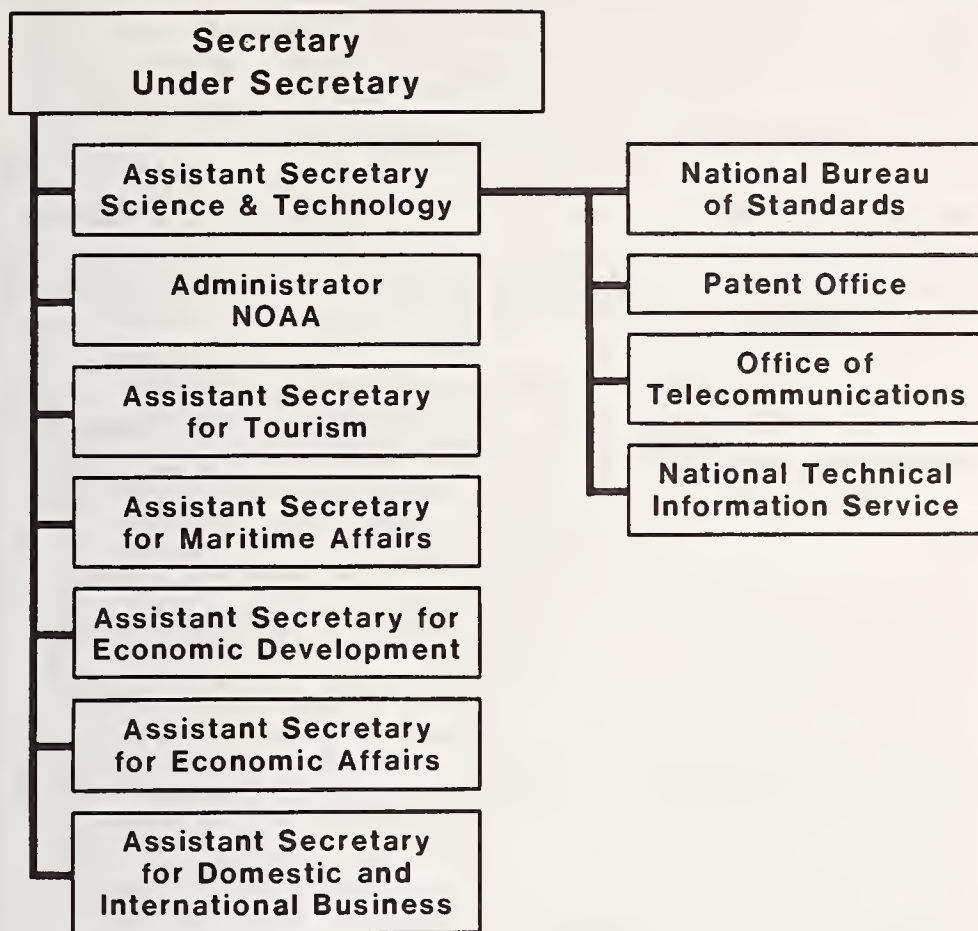
DOC/NBS Organization Structure

Since the National Voluntary Laboratory Accreditation Program is a Department of Commerce program, it would be worthwhile to briefly track the organizational structure from the Department to operational units of NBS. (See page 91.)

The Department is structured into organizational units primarily concerned with science and technology and with business, commerce and economics. A knowledge and understanding of all these areas is believed desirable for successful implementation of a national voluntary laboratory accreditation program. Whereas, the needs of the program will obviously impact upon the Assistant Secretary for Science and Technology, information and analysis of data related to business and economics will be needed to evaluate needs and economic impacts of requested accreditation programs (LAPs). Of the agencies reporting to the Assistant Secretary for Science and Technology, NBS will primarily respond to the technical needs of the evolving National Voluntary Laboratory Accreditation Program; whereas the Office of Product Standards, directed by the Deputy Assistant Secretary for Product Standards will be the DOC focal point for all applications and administrations.

U.S. DEPARTMENT OF COMMERCE

To further the Nation's industry and commerce
consistent with consumer and environmental needs



Four Institutes implement the technical programs of the National Bureau of Standards.

The Institute for Computer Science and Technology develops standards and programs for effective use of computers, particularly for the Federal Government. The Institutes for Applied Technology, Materials Research and Basic Standards develop methods of measurement and test; disseminate reference materials, physical standards and reference data; assist the development of engineering standards and the needs for such information; and provide technical support to programs serving national goals. The Institute for Applied Technology (IAT) has had the responsibility of assisting the Department of Commerce to plan and establish the National Voluntary Laboratory Accreditation Program and is actively involved in developing criteria and meth-

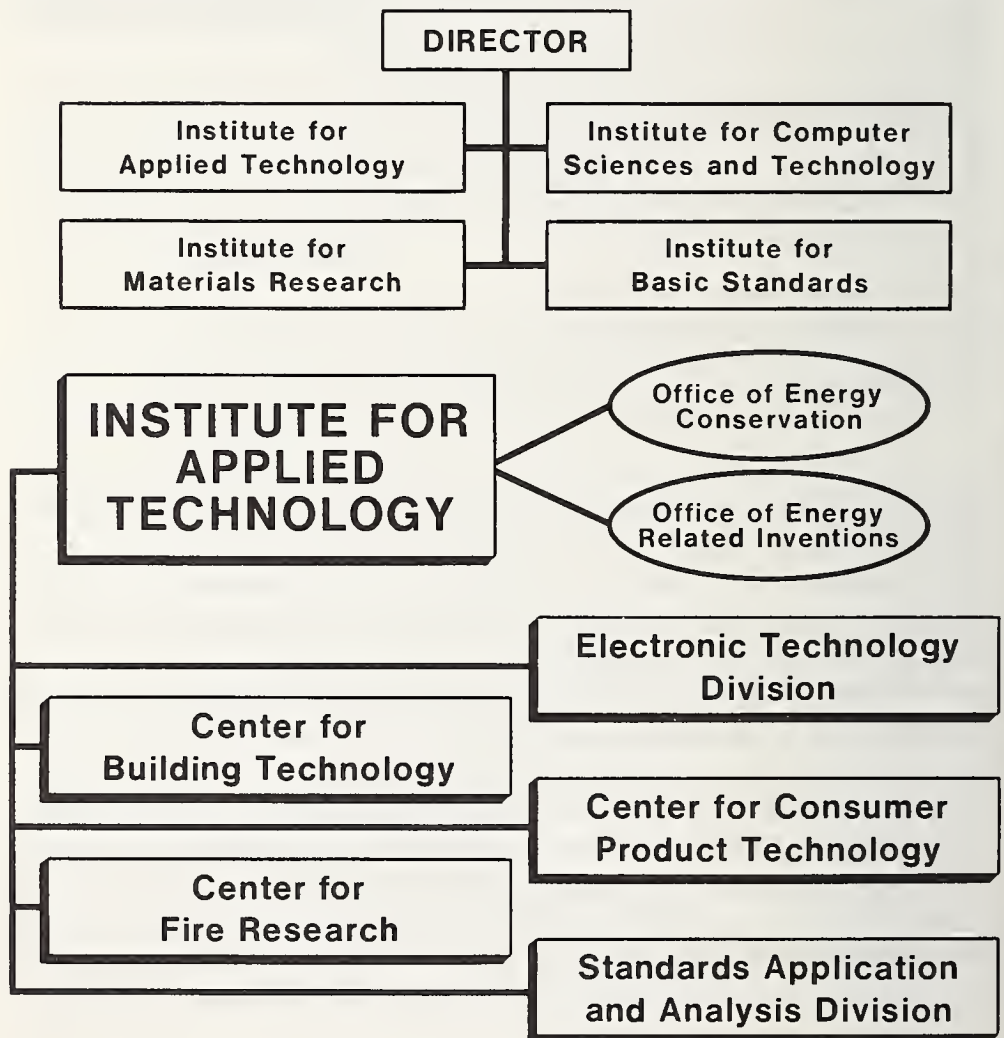
odology for inspection of testing laboratories and in providing proficiency sample programs and on-site inspections of such laboratories.

The Institute for Materials Research (IMR) and the Institute for Basic Standards (IBS) also serve the needs of testing laboratories. IMR services include the provision of standard reference materials, such as reference materials for clinical laboratories. IBS provides measurement assurance programs which, through interchange of physical standards and measurement data, assists metrology laboratories to evaluate the adequacy of their calibration activity.

The Institute for Applied Technology is structured into three Centers, two Offices and two Divisions.

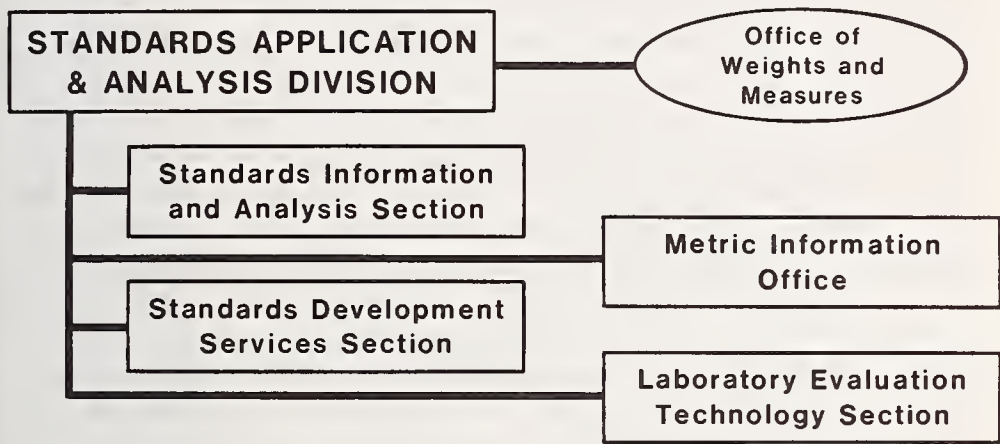
NATIONAL BUREAU OF STANDARDS

To provide measurement and technical information services for effective work by the Nation's scientists and engineers



It may be noted that the names of the Offices and the three Centers relate to specific programs of national concern whereas the Electronic Technology Division and the Standards Application and Analysis Division concern activity that serves more general needs. The IAT activity related to testing laboratory evaluation and the National Voluntary Laboratory Accreditation Program is centered in the Standards Application and Analysis Division.

The Standards Application and Analysis Division has two Offices and three Sections.



The two Offices serve specific national interests. The Office of Weights and Measures assists the National Conference on Weights and Measures in assuring that the States have physical standards of sufficient accuracy to promote equity in trade and commerce. Assistance, training and advice to State metrology laboratories that calibrate inspectors' working standards is part of this assistance. The Metric Information Office assists the Nation's transition to the metric system by providing related information and technical advice. The Standards Development Services Section supports the Department of Commerce Voluntary Product Standards Program. This program assists and provides a focus for anyone who wishes to develop and promulgate voluntary consensus standards for products when it is not possible to develop such standards through the usual voluntary standards writing bodies. This program is also available to assist standards writing organizations develop standards through similar procedures.

The Laboratory Evaluation and Technology Section, as the name suggests, develops evaluation technology and provides operational programs involving laboratory on-site inspections and proficiency test sample distributions. The Cement and Concrete Reference Laboratory (CCRL) and AASHTO Materials Reference

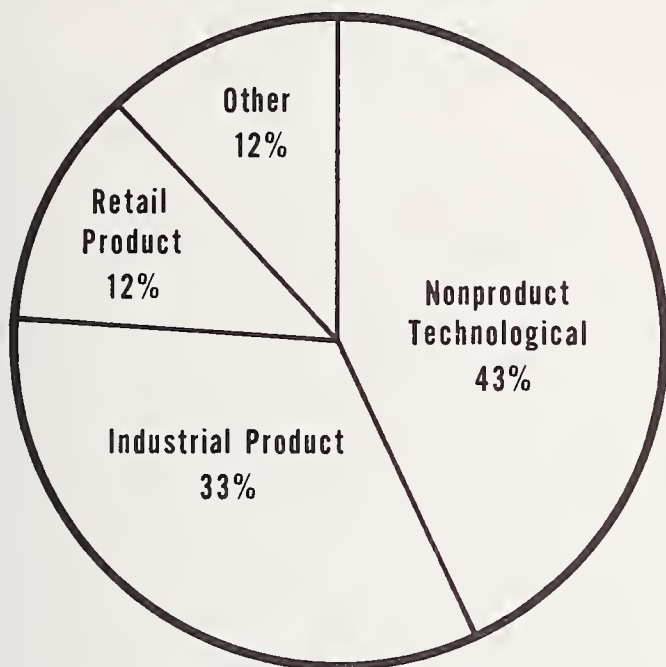
Laboratories (AMRL) located in this Section provide inspections and proficiency test sample distribution services for fees to several hundred laboratories throughout the Nation that test in product areas that include cement, concrete, aggregate, soils, bituminous materials and mixtures and reinforcing rods. The CCRL is sponsored by the American Society for Testing and Materials (ASTM) and is staffed by their employees working as NBS Research Associates. The AMRL is sponsored by the American Association of State Highway and Transportation officials. Collaborative reference programs are also designed and conducted by the Laboratory Evaluation and Technology Section. The programs provide uniform sample distributions for collaborative testing by participating laboratories. The laboratories' measurement data is returned for statistical analysis and each laboratory is advised of its results relative to those of other participating laboratories. At the present time, these programs serve laboratories testing in paper, paper-board, rubber, color and appearance and forensic areas. The background of experience contained in the Laboratory Evaluation and Technology Section will be of invaluable aid to the DOC in providing technical assistance and examination services required by the National Voluntary Laboratory Accreditation Program.

The Standards Information and Analysis Section has facilities that will be of assistance in the gathering and analysis of the technical information required for assessing the need and structure of requested laboratory accreditation programs. Technical information that may be required and can be provided by this Section include data related to product standards and test method usage, existing laboratory examination criteria and activities, and the identity of potential expertise for developing criteria and examination services. The NBS Standards Library, maintained and used as an analysis tool by the Standards Information and Analysis Section, will be used to retrieve necessary information. The library contains standards, codes and specifications of both domestic and foreign origin. This vast source of information, in addition to other information that will be needed as the National Voluntary Laboratory Accreditation Program becomes operational, convinces us that a computerized information retrieval system will be part of the technical assistance required.

Another information source maintained by the Standards Information and Analysis Section is a roster of NBS staff members' participation in standards committees. Information on current committee activity can be obtained directly from the NBS staff member who can provide channels of communication with those active in standards development and related activities. This information will update the material already written into the standards. NBS staff are members of, or participate in, more than 1,500

standards committees. These standards committees relate to industrial and retail products and to non-product technologies in the proportions shown below.

TYPES OF STANDARDS (Participant Survey)



Now let me highlight some of the background. For many years the Department of Commerce, through its technical agency, the National Bureau of Standards, has assisted needs for testing laboratory evaluation. Since 1929 NBS has participated with Federal and State agencies and private interests in establishing evaluation criteria for testing laboratories and in providing on-site examinations, proficiency test samples, calibrated standards and materials. Several hundred laboratories working in areas such as concrete, cement, asphalt, paper, fiberboard, color and appearance, clinical and forensic testing make use of these services.

In 1969 the American Society for Testing and Materials requested that NBS participate with ASTM and other interests in establishing a Testing Agency Inspection Service that would provide testing laboratory examination service over a broad range of product areas wherever needs developed. In the same year the National Conference on States on Building Codes and Standards asked NBS to develop evaluation criteria and examination methodology for determining capability of agencies that test and certify mobile homes, then being produced at the rate of several hundred

thousand per year. In response to the States' request, drafts of criteria and methodology for examination were prepared and submitted for development into consensus standards. The ASTM proposal for a Technical Inspection Service led to an NBS study. This supported the ASTM proposal but suggested that the developing needs of domestic and international commerce and the public health and safety would be benefited by a means that would also provide a public recognition of testing laboratories found qualified on the basis of such inspections.

A conference was convened by NBS in September 1970 to consider the idea of a national voluntary laboratory accreditation system. An ad hoc committee, designated by the conference, developed a concept of such a system during 1971. The concept provided for a non-governmental or quasi-public national laboratory accreditation board. The board with assistance of advisory committees and reference laboratories would provide on-site inspection and proficiency test sample programs to fee-paying laboratories, providing accreditation to qualified laboratories that serve the general public or the Government. The board would receive and approve accreditation criteria developed by appropriate external bodies and would receive legal advice and technical aid from the Government. This concept received an informal but rather broad distribution during 1972. In December of that year, the concept was submitted to various Federal agencies for their informal comments regarding their potential use. At this time, the concept contained no plan for its implementation. Alternatives that were being considered were: establishment by incorporation in the private sector; establishment by legislation; establishment by a Government agency under existing authority.

The National Business Council for Consumer Affairs issued its report "Safety in the Marketplace" in April 1973. The report recommended that the Secretary of Commerce initiate action to evaluate the merits of establishing a quasi-public national laboratory accreditation board. Thereafter, the Department received several inquiries and engaged in several discussions concerning its plans regarding a national laboratory accreditation program. Inquiries included those from Congressional Representatives William Steiger and William Mailliard. Discussions were conducted with trade associations, businesses and organizations such as the U. S. Chamber of Commerce. In April 1974, the Department, in response to a request for the Department's views regarding laboratory accreditation, advised Senator Magnuson, Chairman of the Senate Commerce Committee, that it was contemplating its administrative establishment of a program that could serve the orderly evolution of a laboratory accreditation system as national needs develop.

A Federal Register notice, May 8, 1975, proposed the Department's establishment and procedures for the National Voluntary Laboratory Accreditation Program. Over 150 respondents, including Federal and State agencies, technical societies and trade associations, industries, testing laboratories and individuals provided oral testimony or written comments on the proposal during the public review period that followed. On the basis of this public review, the proposed procedures were revised and the National Voluntary Laboratory Accreditation Program was established by notice in the Federal Register, February 25, 1976. Procedures of the Program are now set out in Title 15, Part 7 of the Code of Federal Regulations.

This briefing today will indicate that the procedures of the National Voluntary Laboratory Accreditation Program, by themselves, only provide guidelines for the functioning of the program. As rules and regulations, the procedures primarily provide for due process and fairness in administering the program and define the manner in which the Department will respond to requests for laboratory accreditation services. Each step taken under the procedures requires the Department to provide an opportunity for public comment, and a public hearing is mandatory, if requested.

During the public comment period regarding the proposed establishment of the program, needs for laboratory accreditation were better identified. Most respondents indicated widespread interest and support for the proposed program which contemplated establishment of accreditation services on the basis of classes of technology. However, industrial response from some particular product sectors argued that there is no need for laboratory accreditation in their areas of interest. Thus, you will note that the Department of Commerce program is structured to serve product areas only where a request is made and where the need for accreditation is established.

This background leads us to a clear statement of the program goal and purposes:

GOAL: The National Voluntary Laboratory Accreditation Program is a voluntary system for evaluating the technical and professional competence of testing laboratories. It provides for the accreditation of testing laboratories that meet established criteria and monitors, on a continuing basis, the performance of those laboratories that have been accredited.

PURPOSE:

- identification of “nationally recognized” qualified laboratories and their respective capabilities for use by the public and Federal sectors:
- establishment of a single, national system for voluntary participation without multiple, costly, and time-consuming inspections by numerous Government and non-Government agencies:
- establishment of a means for industry (small and large) to identify others and be recognized for operation of competent laboratory test facilities for use in environmental controls and product quality testing and monitoring:
- establishment of a reasonable method of utilizing the expertise in measurement and measurement assurance of NBS in the development and improvement of the Nation’s laboratory capabilities:
- considerable improvement in the credibility of product certifications and opportunities for reciprocal agreements in international and domestic markets.

As stated in the preface of my talk, the DOC/NBS organizational structure, background and goals would be outlined followed by a quick review of important paragraphs and sentences in the Federal Register. These are as follows:

Who can request accreditation programs?

(a) Any person may request the Secretary to find that there is a need to accredit testing laboratories which render services regarding a specific product so that it may be ascertained whether such product meets the requirements of applicable standards.

Title 15, CFR. Part 7
Feb. 25, 1976

What should a request include?

(b) Such a request shall be in writing and will include the following:

- (1) Identification of the product;
- (2) Text of an applicable standard;
- (3) Text of a test method, if not included in the applicable standard identified in paragraph (b)(2) of this section; and
- (4) Basis of need for accrediting testing laboratories that serve the product identified in paragraph (b)(1) of this section. . . .

Title 15, CFR. Part 7
Feb. 25, 1976

What is meant by person?

(d) The term "person" means associations, companies, corporations, educational institutions, firms, government agencies at the Federal, State and local levels, partnerships, and societies, as well as divisions thereof, and individuals.

Title 15, CFR. Part 7
Feb. 25, 1976

What determines a product?

(b) The term "product" includes the plural thereof and means a type or a category of manufactured goods, constructions, installations and natural and processed materials or those associated services whose characterization, classification or functional performance determination is specified by standards.

Title 15, CFR. Part 7
Feb. 25, 1976

What determines a testing laboratory?

(e) The term "testing laboratory" means any "person," as defined above, whose functions include testing, analyzing, or inspecting "products" as defined above, and/or evaluating the designs or specifications of such "products" according to the requirements of applicable standards.

Title 15, CFR. Part 7
Feb. 25, 1976

What testing laboratories can apply?

(e) In carrying out the activities authorized by this section:

- (1) No action will be taken or criteria developed that would prohibit the accreditation of a testing laboratory solely on the basis of that laboratory's association or nonassociation with manufacturing, distributing or vending organizations, or because the testing laboratory is a foreign firm;

Title 15, CFR. Part 7
Feb. 25, 1976

Is more than a product standard needed?

(c) Whether for the specific product involved, there is in existence a standard that is deemed by the Secretary as being of importance to commerce, consumer well-being, or the public health and safety;

(d) Whether there is in existence a valid testing methodology as determined by the Secretary for ascertaining conformity to the standard of the specific product involved; and

Title 15, CFR. Part 7
Feb. 25, 1976

Will the program develop standards?

- (2) No action will be taken under this program to develop a product standard or test method standard;
- (3) No action will be taken under this program to modify a product standard or a test method standard where such a standard is in existence;

Title 15, CFR. Part 7
Feb. 25, 1976

What will criteria to which laboratories be accredited include?

- (1) For general criteria pertaining to testing laboratories:
 - (i) Organizations;
 - (ii) Staff;
 - (iii) Physical plant;
 - (iv) Operational processes;
 - (v) Control procedures;

- (vi) Quality assurance; and
- (vii) Professional and ethical business practices, as appropriate.

Title 15, CFR. Part 7
Feb. 25, 1976

What will specific criteria consist of for accrediting laboratories?

(2) For specific criteria pertaining to testing laboratories:

- (i) Personnel and equipment qualifications required of the testing laboratory function;
- (ii) Requirements applicable to proficiency sample programs;
- (iii) Application requirements;
- (iv) Initial and periodic examination and audit procedures; and
- (v) Professional and technical qualifications of personnel who examine testing laboratories.

Title 15, CFR. Part 7
Feb. 25, 1976

Will the program develop all necessary criteria?

(b) The general and specific criteria developed under this section for accrediting testing laboratories will be based upon criteria found in existing standards where such existing criteria are deemed appropriate. . . .

Title 15, CFR. Part 7
Feb. 25, 1976

What about other existing or developing programs other than the Department of Commerce's?

(b) The program will seek through coordination and consultation, to maximize benefits derived from other laboratory examination and accreditation activities. . . .

Title 15, CFR. Part 7
Feb. 25, 1976

In order to put these concepts, definitions and statements into a cohesive program, it is appropriate to describe the outline of the procedures.

For the purpose of this briefing and for convenience in presentation, we can consider many of the procedures as dividing into *four phases* related to the establishment of a laboratory accreditation program for a specific product. These four phases are as follows:

- *Finding of Need
- *Establishing Criteria Committee
- *Developing Criteria
- *Accreditation of Laboratories

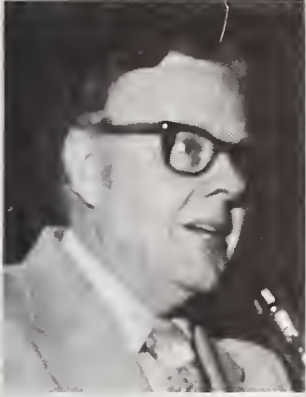
These phases are all defined in the Federal Register notice and I will not attempt to describe them in more detail here. What needs to be pointed out here is the impact this program can have on the entire weights and measures field. It provides a way whereby the Federal Government, State and local governments and the private sector can work together toward identifying and recognizing competent laboratories to meet growing product evaluation needs. The questions of "reciprocity" and "nationally recognized" have never been answered to the satisfaction of the private or government sectors. This program provides the first step toward building a nationally acceptable system for evaluation and certification of products as defined in the Federal Register notice.

In addition to providing technological assistance, as described to evolving laboratory accreditation programs, NBS will continue its existing cooperation and participation with laboratory evaluation programs that do not need that level of national recognition to be provided by accreditation. NBS will continue its participation with standards groups and others in developing test methods and the means for evaluating the performance of such methods.

In summation, there seems to be some presumption that our Nation's laboratories are not good. That is not the basis for this program. The problem is to identify the qualified laboratories of our country and to assist them in meeting our Nation's ever growing needs. "Nationally recognized," *without supporting evaluation*, can no longer satisfy our industrial and governmental needs, either domestic or international.

CONSUMER AFFAIRS FORUM

Opening Remarks by O. D. MULLINAX, Moderator; Director, Fuels and Measures Division, Department of Agriculture, State of Georgia



It is quite appropriate to include the Consumers Affairs Forum in the National Conference. The subjects to be discussed this afternoon are complicated and touch the lives of every consumer in the country. We are fortunate to have men and women who are specialized in their subjects and know the value of communicating this information to all who concern themselves with consumer problems.

A wider understanding of these problems and an awareness of the complexities involved in reaching solutions must be pointed out in forums such as this one.

It is indeed true that there is today a new road for consumers. What could be more complicated and more challenging to each of us than being a part of the solution on "labeling drained weight?" What the consumer needs to know about metric may not be a great deal today but as each tomorrow comes and goes, the consumer is going to need to know all about metric.

A NEW ROAD FOR CONSUMERS

Presented by MARGARET DANA, Consultant; Consumer Attitudes, Consumer Relations Council



It is a great pleasure for me to be with you again. I think of the weights and measures people as friends, but you are not only my friends, you are the daily protection of consumers' pocketbooks and of honest producers and sellers and their businesses. Sometimes I think you do not really realize how important you are, and I know well the American public does not yet know how important you are to them as the very first and most realistic consumer protection in this country.

My friends, we are beginning a new era with this year of 1976. I live near Philadelphia so I have not only had literally an "ear full" of the bicentennial for some time, but I have watched its effect on people and since it is part of my job to see what people think, what they do, what they want, what they need, I have been very interested to see (not only in my contact as I go back and forth across the continent talking to consumers of all kinds, but also in their letters to me) people are turning to a new road. This new road is one of two that lie ahead. We are going to have to make a choice very soon. I think it is time we stop, look, and listen because the era is changing and is upon us. I do not have to tell you that we have a strange public attitude situation in this country. It has been growing for some time. You know that of public attitude—it is made up of a lack of confidence in things, in people, in government, in laws; it is made up of suspicion, antagonism and distrust. You probably meet it more often in the distrust of packaging and labeling, weights and measures. Now why? How do we get into this curious situation in the year 1976, just two hundred years since we started out on a good, new road of freedom? Do you blame "Watergate" for all of this? No, "Watergate" was a result not a cause.

Now I am going to try to sell you an idea this afternoon, an idea that I hope you will welcome and that will help turn the tide in the right direction. To get the picture of where we are and why we got to this curious point in American history, we need to look back quickly and get a panoramic picture of that road we have come—to know how we got here and why. This road behind us has had enormous changes for consumer-buyers, producer-sellers, regulations and regulators. So let me give this quick picture because I think if you grasp what is going on and the changes which have developed through the centuries, you will make the decision as to which is the road ahead we should be taking.

First, let me suggest you look at what must have been the very first consumer buying. I have talked with some friends who are archaeologists and I have talked with historians, and they believe (and I agree) that this is the way the very first buying happened. Back in those archaic days when people lived in little huts and little groups, each family, each man made themselves everything that they had to use. They made their jugs, pots, pans and whatever clothing they were going to use; each family produced its own. Here is what I think happened. One morning, a man in a house looked out his back hut door, saw his neighbor making something, maybe a pottery jug. He watched; he was seeing the pottery jug being made (mark that work, "seeing"). He knew exactly what materials his neighbor was using, he knew exactly what that product was meant to do, he knew exactly what its value was to him as well as to the maker. He also recognized that

this man was doing a better job than he could do himself. So he said to his neighbor, "I'll trade you anything I have (that you think is equal) for that pottery jug. I like that because you are doing a better job than I could do." They traded; and that was the very first buying. The producer and the consumer met.

I would like you to imagine hanging up in this great universe of ours, an enormous pendulum. That pendulum represents responsibility; and when that first buying occurred, it hung down in the middle because both of those men, the producer and the user, shared a joint responsibility and an economic partnership. So the pendulum stopped in the middle—joint responsibility for maker and user. For a long time, the pendulum stayed there; but then, of course, the distance between producer and user began to spread. People got the idea that if they could sell or trade things in the little village, why couldn't they find some more people and trade somewhere else.

When I was going through some old archives in Virginia, I came across a very interesting article about something that happened in the 13th century in England. It seems that there were some men who had made some meat pasties and were taking them to the next village to sell—which was fine, except they had made those meat pasties of a drowned cow and the cow had been drowned too long. The villagers did not like it and they complained to the overlord. The overlord sent his men down to the village, tied up the guilty villagers, and banned them from town until they could sell a good product.

For centuries after that, the pendulum swung all the way over onto the producer-seller. He was solely responsible for what the product was and what it did for the consumer; the buyer had no responsibility whatever.

Then the big pendulum began its swing in the other direction. It was approximately 1534. Do you know where and when our familiar phrase, "caveat emptor," meaning "buyer beware," first appeared in print and was beginning to be used? I have asked this all over the country, from top faculties of Universities to consumers and so forth; none knew. Well, it was in 1534. Fitz Herbert wrote a book called, "The Book of Husbandry." In it, he warned people to be careful when doing any horse trading. He said, "If the horse be not ridden upon, then caveat emptor"—buyer beware. From that time, the whole attitude of the world changed as colonization began in this country, as this country built, as we went West and so forth; the emphasis (and indeed, the law) put all of the responsibility on the buyer, the consumer-buyer, to know what he was buying, what it was worth, what it would do, how it was measured, and if it was right. In fact, as late as 1892 there occurred what I would call one of the "dirtiest" cases that ever went into the U.S. Supreme Court. I call it the "steamboat gyp."

There was a man who had a business taking freight up and down a small shallow river. He used to paddle his little boat up the river and drop off items at the dock. Then he heard about a steamboat, that was new in those days, and decided if he could get a steamboat, he would not have to do all the work. Conveniently, a man approached him with a steamboat for sale. The first man said, "This is a very shallow river; I can't have much draft on a boat." "This boat doesn't need more than a few feet of water," said the man with the steamboat. So the first man bought the steamboat; and on the first trip up the river, the boat grounded in five feet of water. So the man sued the seller, and the case went from court to court until finally it reached the U.S. Supreme Court where the decision was in favor of the seller because the buyer should see to it that what he gets is what he expects it to be. The boat should have been tested in the river before it was bought. Never trust the seller or the producer; it is up to you, the consumer-buyer; the responsibility is yours. So you can see that the pendulum is now way over solely on top of the buyer.

Well, the 20th century hit us not long after that. The wild Niagara of new products, new services, new ideas, new packaging, everything bounded out onto the American public; and frankly, I do not think very many people knew what they were making, and I know not very many people knew what they were buying. I pity the weights and measures men of those days. I do not think in 1915 we really had organized weights and measures as we have today, but somebody had to do something. There were all of those new things and no adequate substitute had been developed for that old, old thing, "seeing" a product being made.

Today's attitude is returning to the idea of the seller and producer being responsible. The consumer advocates are often, in effect, saying, "You cannot trust industry, government, regulators, or inspectors; they are all trying to 'rip us off.' " What caused this attitude? It was simply a lack of communication, lack of a substitute for "seeing" things made, and instead of people working with people, we became a divided country. I have heard many people in the general public talk about government money, saying, "Well, I don't want to have to pay for that; and I don't think our town should. I think the government should pay for it." And when I say, "Where does the government get the money; where does the government money come from?" you would be amazed at how many people do not know. They must think the government has a gold mine; they forget that taxes are part of people paying for what people get.

Now suspicion has been growing; distrust has been growing; we are divided. Is that the road we want ahead? Is the solution to turn everything over to government management? Look at the

two roads ahead of us. One of those roads is called free choice and free enterprise; the other, dictated choice and dictated enterprise. Well, which are we going to select in the year 1976 as our bicentennial begins. I think we are going to choose to get back on that road that our forefathers designed, the road of free choice and free enterprise. But how are we going to do it? I feel that by bringing people together as partners in our economy, by making it a joint responsibility, we will get that pendulum back to the middle again.

I have spent literally years and years searching for the right tool and the right mechanism to bring this about. What I have found, all of you have helped me find. I have learned that standards (particularly performance standards) as measuring sticks, are the tools that can bring people together again in trust and confidence. It is a bridge of communication that we have not had, and we need it. We have to be careful about words. We are so silly, thinking that people understand any word that we understand; words can produce some very strange results. I was reminded the other day:

In 1950 one of our senators was campaigning against another senator who was a very nice man. The first senator, in trying to be humorous, was reported to have said in his campaign speeches particularly through the rural area of his State where people were not so terribly sophisticated, a little joke about the senator he was running against. Notice the words because unless you are careful, you are going to be caught and trapped in the same words. "Are you good folks aware that Senator _____ is known all over Washington as a shameless introvert? Not only that, but this man practices nepotism with his sister-in-law. And he has a sister who was once a thespian in wicked New York City. Worst of all, before his marriage, this man had literally practiced celibacy!"

Well, his audience did not understand the words he was using, and the senator spoken of in the joke was defeated by an enormous vote. The people said, "If he is that bad of a man, we cannot re-elect him to the Senate!"

Another example—I keep on my desk a letter from a woman who wrote me to say she would like a copy of a leaflet I had mentioned in my column but she did not know if she qualified for one because the column stated it was for consumers, and she was just a housewife! Words! We have to be so careful to say the right words in the right way to bring people together.

Now, what is the solution? Let me tell you briefly about a project I started three years ago called, "The Consumer Sounding Boards." We know that standards are the best possible tool to develop a good product and for consumers to use in selecting a product. Why don't we get people together; those who use, those

who make, distribute, and regulate those products. Instead of just having a group of supereducated, supersophisticated, knowledgeable consumers, (we are not selling things just to that kind of consumer) let us make it a demographically correct cross section of consumers in every consumer sounding board. I went to the Bureau of Census, the Bureau of Labor Statistics, and they helped me work out a picture by levels of income, by levels of age, by background, men and women. I think at this point I had better interject that the only change that has come over those figures in about the last five or six years is that more and more men are going to have to do consumer buying because more and more families have two earners, the man and the wife. So some of the job of buying instead of being 90 to 95 percent women, as it has been, is going to be delegated to the men, who then may have to learn to be intelligent consumer buyers themselves!

These consumer sounding boards were meant not to provide expertise or technical engineering but only a cross section of people at the grass roots, at all levels—what they thought about the product for which the standards were being discussed, how did they use or maybe misuse that product, what they expected it to do, were they satisfied, did they understand the labeling. When they would go into a grocery store and look at a package, did they understand what the different labeling on that package meant?

For curious reasons, it must have been an idea whose time has come because the world has jumped at the idea of consumer sounding boards. We started out with five organizations sponsoring this project: National Bureau of Standards, the American National Standards Institute, American Society for Testing and Materials, Underwriters Laboratories, and the National Fire Protection Association. The Consumer Product Safety Commission soon got onto the boat too and said this was a good way to find out what consumers honestly think. We started out with having seminars around the country to let the consumers know what standards were all about—what is a standard, and how do you go about developing one. We had hardly gotten through two or three of these seminars, when we were deluged with demands: "We want to get into it now, help us; we want our voice to be heard, help us." So we began organizing the consumer sounding boards. The first one was in the Delaware Valley under the sponsorship of ASTM. They have been marvelous because they believe the consumer has a place in the development of consumer product standards, not just on the technical committees, but as a pool of information about that product's use and value. We have worked for three years there now, and that's the prototype. We now have 12 working consumer sounding boards in this country sponsored by the organizations previously mentioned, sometimes with the

coordinated and cooperating sponsorship of a local consumer group or a college, university, organization, even a trade group. They are: the Delaware Valley one which covers Philadelphia and the surrounding area; metropolitan Chicago; Long Island, outside of New York City; Boston from the New England area; San Francisco; Los Angeles; and Seattle; Minneapolis and St. Paul; and four around Washington, D.C. itself (NBS is really getting that going). But then there are troubles involved like you would expect from any group. We need to keep people on their toes, make them realize that this is important; they are having a part in getting America back on the road of free choice and free enterprise. Their voice counts; they have joint responsibility; they are partners in the economic system and that has to be hammered at them over and over again.

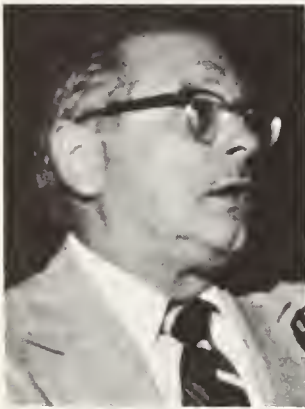
I would like weights and measures to join in this actively. You could help and they could help you, and everywhere there is a weights and measures office, I would like to see that office get into the act. Now for instance, on August 10, there is an International Congress on Engineering and Food to be held in Boston. I have been asked to chair one segment. ASTM is organizing it and it is to be on "What do consumers really need and want in the food area; how do we do the best thing for them?"—all the way through to producing more food, better food, better packaging, better weights and measures, everything. Fortunately, our friend Harold Wollin of the Office of Weights and Measures has agreed to be one of the speakers. We will have a man who is a very important technical director for a citrus industry group. We will have Morris Travis who used to be at the Department of Commerce but is now head of the Advance Engineering Institute at MIT. He is going to come and talk. A couple of days ago, we had a telephone call from a man who is Professor of Agriculture Engineering and Commissioner of Engineering for Israel who said he had heard about this International Congress and would like to come and speak.

We are going to do something I believe unique in our era; we are going to bring people together—experts, top experts; but we are going to say, "You cannot really make these decisions until you know what people want at the ultimate end of the food product." One cannot simply say, "You must eat this; you are going to have to do this. . . ." Bring people together and make it a partnership. People working together should be our new era from 1976. It makes me think: Do you know the origin of the handshake? In ancient tribes the leader would put out his hand as he met with those who might be enemies, showing he had no weapon; and they shook his hand to show they had no weapons; from that time, they were together, working together.

Let us do it for the next hundred years!

DRAINED WEIGHT REGULATIONS

Presented by BENJAMIN M. GUTTERMAN, Assistant Director for Coordination/Technology, Bureau of Foods, Food and Drug Administration, U.S. Department of Health, Education and Welfare



Recently an associate of mine and I were discussing early codifications of food and drug laws and regulations. We reached back to a very early set of rules—Leviticus or the Third Book of Moses. We noted a caution that one shall not steal nor deal falsely nor lie to one another. The Book goes on to admonish that one shall do no wrong in judgment in measures of length, or weight, or quantity. Leviticus instructs us to have just balances, just weights, a just “EPHAH” (a little more than one bushel)

and a just “HIN” (about one gallon).

It appears to me that the mission of the National Conference on Weights and Measures has a long and respectable history going all the way back at least to the Third Book of Moses.

The mission of the Food and Drug Administration has the same heritage. For example, the Federal Food, Drug, and Cosmetic Act states that a food shall be deemed to be misbranded if, among other things, its container is so made, formed, or filled as to be misleading and, for a package form, if its label does not bear an accurate statement of the quantity of the contents in terms of weight, measure, or numerical count. Another law—the Fair Packaging and Labeling Act—states, “Informed consumers are essential to the fair and efficient functioning of a free market economy. Packages and their labels should enable consumers to obtain accurate information as to the quantity of the contents and should facilitate value comparisons. Therefore, it is hereby declared to be the policy of the Congress to assist consumers and manufacturers in reaching these goals in the marketing of consumer goods.”

For a number of years, the question of whether or not a container of food was filled as full as practicable was often raised along with a collateral question of whether less expensive or less desirable ingredients were being substituted in part for the ingredient one expects for his payment.

In recent years, the Food and Drug Administration has been slowly but surely attempting to resolve the problem. As a law enforcement agency, the FDA must be reasonably certain that its

actions are legally defensible and are of such a nature that if an action successfully withstands a challenge, it not only wins the battle but also wins the war. Among other things a regulation to be meaningful must be technically and legally sound. It must be capable of evenhanded application. It not only must be in the interest of consumers but also must be capable of being complied with. Further, the benefit to consumers should be equal to or greater than its cost. Of course, I am speaking of regulations concerning economic matters. Those concerning public health and safety related matters involve other factors.

Examples of recent actions concerning economic matters as taken by the Food and Drug Administration are the establishment of regulations for the labels of such things as seafood cocktail which must now declare the percentage of seafood; diluted fruit and vegetable juices which must declare the percentage of juice; canned mixed nuts which under certain conditions must declare the percentage of the predominant nut ingredient. There are many more. Also, for some time standards of identity or fill of container have required minimum amounts of the principal ingredient, that is, the drained weight. For some canned foods we have recommended that the drained weight be declared. These recommendations have been complied with.

Recently following its own study of a number of canned and frozen foods containing a drainable liquid such as sugar or other syrup, or water or brine or juice, the Consumers Union of the United States, Inc., petitioned the Commissioner of Food and Drugs to require that the containers of these foods bear on their labels a statement of the drained weight of the solid food in the container.

The Consumers Union argued in support of its proposal with the following example:

TABLE A. *Peach slices, yellow cling, in heavy syrup*

	Labeled wt.	Average drained wt.	Average price	Cost per lb of drained wt.
A&P	16 oz.	10.6 oz.	\$0.29	\$0.44
Del Monte	16 oz.	11.0 oz.	.31	.45
Grand Union	16 oz.	9.6 oz.	.25	.42
Waldbaum's	16 oz.	10.7 oz.	.27	.40

Data from *Consumer Reports*, "Why Net Weight Spells Nonsense on Canned Food Labels," October 1972, p. 666.

The column labeled "average price" represents the unit price per pound of net weight, since all the containers were of the one

pound (16 oz.) size. Since only net weight is declared today, the consumer would select the lowest average price to make his "value comparison". Thus the Consumers Union argued that the consumer is entitled to know how much of the package contents purchased is fruit or vegetable and how much is liquid. The petitioner also argued that the drained weight is predictable, controllable and, in fact, supplied to large volume purchasers in accordance with specifications.

While reviewing the petition the Food and Drug Administration was aware that even under good manufacturing practices the relationship between the fill-in-weight and the drained weight is variable. We were aware, also, that many consumers want to know the drained weight of particular products but this information is not currently available in most labeling, which states only the net weight or the total contents of the container.

We gave the fullest consideration to the petition and published the proposal as received for comment. In this essentially economic matter we realized that a number of questions needed to be answered.

In the publication of the proposal we asked those questions and we asked for data documenting the answers as well as for any other comments submitted.

We asked for information on:

How variations in form, unit size, shape, maturity, character (firm or soft), variety, packing medium density, climatic conditions (such as rainfall, temperature), irrigation practices, cultural practices and geographic regions affect the drained weight of the processed fruits and vegetables.

We knew that these factors did have an effect but information was needed on the extent and controllability of that effect.

We asked for data illustrating drained weight variations from container to container and lot to lot. We sought information on the best way for the label declaration to be made; that is, should it be the actual weight of each can or the average of all cans in a lot, and if lot average is declared, what deviations should be permitted.

We also asked whether a minimum drained weight should be established for each food for each container size.

We wished to know what effect is imposed upon packing speed in attempts to pack to higher drained weights.

With regard to higher drained weights a very important question concerned the public health aspects of requiring more solid food in a can which must undergo thermal processing.

A related very important question concerned the need for adequate "head space" in canned foods.

In view of mixed information on consumption of packing media, we asked for a survey to be carried out showing whether the packing media are or are not consumed by the majority of people.

We requested data illustrating the purpose and function of a packing medium in processed fruits and vegetables.

Knowing that much of the canning industry preferred to declare the "put-in" weight of a canned fruit or vegetable in lieu of the drained weight, if any declaration at all is to be required we asked for data showing the relationship between the two.

We stated our concern over the problem of manufacturers who pack in lithographed containers and who must order their cans far in advance of the packing season.

Finally, we asked a very important set of questions. We asked for data illustrating costs involved in holding unlabeled containers until the drained weight can be determined. We asked for data on the costs of assuring compliance with drained weight declarations. Also we asked for views on whether the drained weight information provided on the label will be worth the added cost. Essentially we were asking for a cost benefit analysis.

Approximately 1500 to 2000 comments were received. The exact count is difficult to determine. In some instances, more than one letter was received from a single individual; and, in some instances, a single letter was signed by a number of individuals. Some comments comprised a few words on a post card whereas others were many pages long, taking particular positions and supplying supporting data.

Following receipt of the comments, the Commissioner published, on his own initiative, a revised proposal. He limited it to most canned fruits and vegetables, which consist of solid food and packing medium, and proposed that all of them carry a declaration of drained weight. For a number of products, he proposed amending existing fill of container standards and establishing new ones to provide for drained weight requirements.

(See table I.)

We set out sample sizes that vary as lot sizes vary and provided acceptance numbers for the different sample sizes and for different container contents weights.

(See table II which is copied in part from the published proposal.)

For the standardized foods we not only set out different minimum average drained weights for the different foods but also proposed different minimum averages for different styles of the foods and sometimes for count as well for different container sizes.

TABLE I.

Food	New	Amended	Food	New
Peaches		X	Carrots	X
Apricots		X	Leafy Greens	X
Prunes	X		Okra	X
Pears		X	Field Peas and Black-	
Grapes	X		Eye Peas	X
Cherries		X	Pimentos	X
Berries	X		Onions	X
Fruit cocktail		X	Sweet Potatoes	X
Plums		X	White Potatoes	X
Pineapple		X	Tomatoes	X
Figs	X			
Grapefruit		X		
Green Beans	X			
Corn		X		
Mushrooms		X		
Asparagus	X			
Lima Beans	X			
Beets	X			

TABLE II. *Acceptable Quality Level 6.5*

	Size of Container	
	Net weight equal to or less than 1 kg (2.2 pounds)	
Lot size (primary container):	<i>n</i>	<i>c</i>
4,800 or less	13	2
4,801 to 24,000	21	3
24,001 to 48,000	29	4
48,001 to 84,000	48	6
84,001 to 144,000	84	9
144,001 to 240,000	126	13
Over 240,000	200	19
	Net weight greater than 1 kg (2.2 pounds) but not more than 4.5 kg (10 pounds)	
	<i>n</i>	<i>c</i>
2,400 or less	13	2
2,401 to 15,000	21	3
15,001 to 24,000	29	4
24,001 to 42,000	48	6
42,001 to 72,000	84	9
72,001 to 120,000	126	13
Over 120,000	200	19

Compliance with these fill-of-container requirements is determined in one of two ways. For those foods for which USDA had sufficient data to establish lower limits as set out in table III, compliance is determined by the following procedure:

The average drained weight of all units in the sample must be equal to or greater than the average drained weight requirement in the fill of container standard, and the number of units in the sample that are less than the lower limit drained weight

requirement must not exceed the acceptance number in the sampling plan (as shown in table II).

(See table III which is copied, in part, from the published proposal.)

Lower limits are not prescribed for all standards. The average drained weight of the units in a sample must be equal to or greater than the drained weight requirement in the standard, half or more must be equal to or in excess of the average and those that are not are required to be within the variability of good manufacturing practice.

(See table IV.)

For those packers who wish to pack at a higher level, they may do so provided they meet certain specified requirements with regard to averages for the sample and lower limits if the standard provides such requirements.

For those canned foods for which there are no applicable standards for fill of container, the packer shall sample in accordance with the prescribed sampling plan shown earlier in table II, determine the drained weight in each of the cans in the sample, and average these drained weights. Such average shall be equal to or in excess of the declared drained weight on the label. And again half or more of the cans shall be equal to or in excess of the declared label average. Those which fall below shall be within the variability of good commercial practice.

TABLE III. *Drained Weights For Canned Pears*

Halves Style		
Container designation	In any syrup or other liquid medium (ounces)	
	LL ¹	\bar{X}_D ²
8 Z glass	4.1	4.7
8 Z tall	4.2	4.8
No. 300:		
7 count or less	7.7	8.4
8 count or more	8.0	8.7
No. 2:		
7 count or less	10.5	11.4
8 count or more	10.8	11.7
No. 2 1/2:		
8 count or less	15.3	16.4
9 count or more	15.3	16.9
No. 10		
25 count or less	60.8	62.7
26 count or more	62.2	64.1

¹ LL is the lower limit drained weight for individual containers.

² \bar{X}_D is the average drained weight of all sample units in the sample.

TABLE IV. *Drained Weight of Okra*

Container size or designation	Container dimensions (inches)		Styles of canned okra (ounces)	
	Width	Height	Whole or salad	Cut
8 oz. tall	2-11/16	3-4/16	4.5	5
No. 1 picnic	2-11/16	4	6.2	6.5
No. 1 tall	3-1/16	4-11/16	9.8	10.2
No. 303	3-3/16	4-6/16	10	10.5
No. 2	3-7/16	4-9/16	12	12.8
No. 2-1/2	4-1/16	4-11/16	17.8	18.8
No. 10	6-3/16	7	60	60

Minimum averages only.

No data available to establish lower limits.

There are many other specific details but I believe you have grasped the fact that there are many complexities to the problem. It is not, as it may appear on the surface, a simple task to require meaningful drained weight declarations.

In the publication of the Commissioner's own proposal, just described, we reemphasized our desire for cost benefit data and survey data. The invitation for comments was most sincere and extremely important in the decision making process. Based upon the comments received, the proposal could be rejected, considerably revised, or somewhat modified, or finalized as written. The Commissioner emphasized that concerning this purely economic matter, our decision will be based primarily on cost benefit information.

Before I describe the comments now in hand, I wish to state, unequivocally, that FDA is still studying the rather large mass of comments received. Inasmuch as the study is now ongoing, it would be most premature for me to suggest any agency decisions for none have been made. If you should infer from anything I say that an opinion is being expressed, remember that it is only my personal opinion and not that of the Food and Drug Administration.

Over 6000 comments have been received. Again the counting is difficult. Once again we are seeing single communications signed by a number of people, in some instances more than one letter being sent by the same source, and often one signer stating that he represented a number of people. As in the earlier set of comments, we received results of surveys not only of consumers but also of industry capabilities, practices, and some cost data.

The consumer comments were by far the largest number, and the majority of them favored the label declaration of drained weight.

A number of consumer studies have been received. Some were sponsored or conducted by consumer advocates. One was sponsored by the canning industry association. They are all being studied, in depth, by our consumer survey experts and statisticians. As most of you know, a consumer survey—its questions, methods, presentation, and analysis—is a complex science of its own, but we are satisfied that the significance and value of each survey will be determined.

A number of comments have been accompanied by masses of data. Many references are made to existing articles and reports as well as newly developed data. Data in support of cost benefit conclusions have been submitted.

I shall attempt to briefly describe some of the more complex comments received.

The canned fruit and vegetable industry opposed any weight statements on the label in addition to the present net weight declaration. Of course there were some exceptions but they were few. However, let me reassure you that all comments will be given the fullest study to obtain their fullest value. The canning industry then argued that if any additional weight declarations should be added to the label, at most it should be a fill-in-weight declaration. The fill-in-weight is that weight of the solid food before addition of the packing medium and processing. The canners assert that the industry can readily determine its fill-in-weight. It is common practice, they argue, to control fill-in-weight. They also argue that the fill-in-weight is more competitive—that it is equivalent to the label declaration of weights as used for fresh and frozen fruits and vegetables. They argue that for many reasons, including but not limited to the predictability and lack of need for storage time prior to testing as well as relatively non-destructive testing, the implementation of this alternative is far less expensive than for drained weight. They assert that the higher quality fruits and vegetables would not be discriminated against.

It should be noted that FDA does not have the legal authority to check the manufacturer's records which is the only way we can determine compliance with such a requirement. However, if some information concerning the solid weight of food in a container must be declared, the canners association strongly proposes that the solid weight (fill-in weight) be the choice by FDA. They propose that a declaration of solid weight would be checked by FDA against the manufacturer's records. If he refuses access to the records, then he would be checked by FDA using the drained weight compliance procedures set out in the proposal.

They argue, on the other hand, that their consumer surveys show that, in the main, consumers are already satisfied with simply a net weight declaration.

On the other hand, the consumer advocates state that, in the main, their surveys show that consumers desire drained weight information.

The canning industry study of increased costs for drained weight declaration as well as the suggestions for alternatives will be studied by our specialists knowledgeable about food industry practices and capabilities, our economists, and statisticians. The same teams will study all the other data of a similar nature related to costs v. benefits. As you are aware, a number of comments are very easy to understand. They say very simply, "I want drained weight to appear on the label" or they say, "I am opposed to a requirement for drained weight to be declared." Sometimes what appears to be a very simple comment is really quite puzzling. What is meant by the statement, "The law should require an accurate statement of drained weight to be placed on the label"? What is meant by "accurate"? I am sure that many of you would give me different definitions. What about the comment, "I want drained weight to be declared but it should cost no more"? And so on.

Let me pause for a moment and return to the industry comments. I say, without fear of contradiction, that our professional staff consisting of food scientists knowledgeable not only about food science but also of industry capabilities, economists, statisticians, and administrators are the finest in the country. However, we are seeking additional help to supplement our efforts.

By contract the U.S. Department of Agriculture is supplying us with data from several past years showing the capability of the canned fruit and vegetable industry to meet the recommended minimum drained weights set out by USDA.

We have contracted with the States of Maryland, Wisconsin, and Washington to perform selected drained weight studies.

We have very recently contracted with a national consulting service to analyze the data received from the canning industry. Briefly we asked the consultant to independently calculate the actual increased costs that would be involved if the industry is required to comply with the Commissioner's proposal that drained weight be declared. They are to review and analyze the data obtained from literature studies, plant visits and interviews; study the present packing practices of industry and its capability to meet the proposed requirements; study relevant data obtained from other sources such as State agriculture departments, universities with food technology and food science departments and make a full economic analysis and do a similar review of viable alternatives that may develop.

Some of the points to be studied in depth—and I do not list them all—are such things as: What proportion of unlabeled cans are

presently being stored as compared to what would be required by the Commissioner's proposal; in any estimates of cost increases, how do they compare to the costs of the already existing requirement to determine the drained weights of such foods as fruit cocktail, corn, green beans, and mushrooms; does the estimated cost of implementing the proposal include the full costs of already existing quality assurance programs that readily lend themselves to satisfying the proposal; and is there a need for industry to test each lot of the canned foods produced or, based upon prior knowledge or that which is learned early during the packing season, can it significantly reduce the need for lot by lot testing.

The recommended minimum average drained weights, the sampling plan, and the acceptance figures, as shown earlier in the tables, were based heavily upon the USDA published recommended practices. Since publication of the proposal, that Department has commented and is taking exception to a part of it.

The USDA comment criticised the drained weight labeling compliance procedures. It stated that FDA had defined a good lot in terms of statistical values based on the sample rather than the lot, and since the sample size will vary with the lot size, it will be very difficult for canners to target the fill-in weights to assure compliance with the drained weight under all circumstances. For instance USDA inspectors will certify entire lots in the canning establishments, but FDA inspectors may test sublots of the same lot in the distribution channels. The USDA will take a larger number of units per sample and that sample will have a much better chance of meeting the minimum drained weight than would a smaller sample taken by FDA. To correct this situation, the USDA proposes that the definition of a "good lot"—one that meets the drained weight—be independent of statistical sampling procedures. Under the USDA plan, canners would pack to a constant AQL for the lot and a good lot would be one which meets or exceeds the AQL. Sampling procedures would be developed to accept good lots 95 percent of the time. USDA proposes that the sample sizes range from 13 to 48 units depending on the size of the lot and that the minimum drained weight requirements for the sample vary with the sample size. A larger sample would be required to meet a slightly higher drained weight than a smaller sample. A preliminary study by our statisticians indicates that there may be flaws in the USDA arguments.

This too shall be studied intensively. The President's Council on Wage and Price Stability also submitted a comment stating that it favors drained weight declaration "in principle." It sets out conditions under which it is of the opinion that if the proposal is adopted and requires only 95 percent compliance, there should be no significant increase in cost. On the other hand, if FDA should

require 99 percent compliance, then we may see a \$100 million increase in cost, or about 1 cent per can.

The Council also suggested means of compliance determination which should inhibit cost increases. I assure you that these are being fully considered.

To repeat what I said earlier, the published proposal and request for comments is simply what it is intended to be. The proposal is not engraved in stone. Based upon the comments received and other information available, all of which are a matter of public record on file with the Hearing Clerk of our agency, the proposal may be adopted, or modified as necessary, or the Commissioner may decide to reject the proposal in its entirety.

Any regulation promulgated must be both reasonable and in the interest of consumers. It must be one that industry can comply with. It must be one consumers desire. The benefits must be equal to or greater than the costs. The inflationary impact, if any, must be within prescribed limits.

All of these factors, among others, will be considered by the Commissioner of Food and Drugs in developing his conclusions in this matter. His reasons for each of his conclusions will be a matter of public record. The problem, as I stated earlier, is most complex. Actually there are many factors which I went over quite sketchily and probably, too much so for your interests.

I will be happy to talk to you about those matters of particular interest to you. If you should think of any questions at a later time, Bud Wollin can contact me for you.

WHAT THE CONSUMER NEEDS TO KNOW ABOUT METRIC

Presented by BARBARA BEIZER, Assistant Director, National Consumers Congress



The National Consumers Congress (NCC) was founded in 1973 and one of its major goals is to insure consumer input into the economic decision making process in this country. It is for this reason that the decision for the United States to go metric is a most interesting one to us.

Today, I have been asked to speak about what consumers need to know about metric. It is unclear to what extent a literal knowledge of measurements is necessary for any individual to cope with the everyday experience of buying (or selling). Most consumers buy food, for instance, on the basis of the number of servings they are accustomed to

getting from a familiar package or amount of food. People just seem to get used to a system as long as it works for them.

The first and really the biggest problem in changing our system of measurement will be to educate people about what the change means and why the change is taking place. Having read about the plans being implemented by government agencies, industries, educational institutions and the media, I am aware that a massive educational effort is already underway. School children are being taught to think metric, and many resources are being prepared for adult education. The American Association of Advertising Agencies has formed a committee to study the ways in which advertising can aid in motivating consumers to understand and use the metric system. Surely the people who sold us on super king-size cigarettes, potato chips that stack, cereals that crackle and brand-name bananas will be able to sell a majority of the population on modern meters, lucky liters and grams of goodness.

But, beyond a general education process are many specific areas in which consumers may need help in understanding and using the metric system. No amount of general information can replace the actual experience of purchasing products which will be in unfamiliar metric measurements. A person may have read a manual on how to drive a car, but such theoretical knowledge can hardly replace the reality of being behind the wheel. Whether one is buying a new refrigerator, new carpet or curtains, patterns and supplies for home sewing, food or any other products, the kind of service and information at the point of purchase will be absolutely crucial.

There are five different ingredients which can make or break consumer acceptance of metrication at the point of sale. These are personnel, unit pricing, item pricing, rational packaging standards and pricing information associated with conversion costs.

All businesses, whether service or product oriented, should take tremendous care in educating their sales or service staff to be knowledgeable about their product, and sensitive to customer concerns. Sales and service personnel should be ready to explain accurately and completely any differences in a product, and how the cost and/or use of the product might be affected.

For example, an individual who has measured some area of floor in his or her house for carpeting may have measured the area in customary units, and will need advice and help in converting the measurements in metric units. Or a person may have measured in metric units, but come up with an incorrect amount of carpeting needed. This is the kind of problem which must be handled with tact and knowledge, for it is at this point that customers may quite understandably become frustrated in trying to cope with the new system. Sales personnel should always try to be alert for ways in

which their business might best handle customer concerns and problems.

It is a great responsibility for businesses to adequately train their personnel. If sales and service people are not knowledgeable and informative, consumer frustration could escalate unnecessarily and might even reach the point of severely hampering the progress of metrication in this country. But, if personnel are well trained to meet consumer needs effectively, the results will be greater public confidence in their products and services.

Businesses providing some kind of service must be careful that the time and expense involved in training their workers to use metric tools and specifications is not unfairly passed on to their customers. Labor costs for car repairs, for example, should not be unduly exhanced by "on the job" training of mechanics.

The second area of concern at the point of sale is particularly important in the context of the retail food store. The average family shops at least once a week for food, and must make many decisions about what kinds of products to buy. Conversion of food products and packaging will undoubtedly take many different forms, and it is conceivable that even the best of planning will not eliminate all the problems associated with conversion of those products.

A publication put out by the Department of Commerce in 1973 called "What About Metric?" suggests that one of the "fringe benefits" of metric conversion is that once it is accomplished, unit pricing will no longer be necessary. The booklet claims that customers can accomplish comparison shopping by "multiplying the price of the smaller of any two consecutive sizes by 2 (which) would readily show whether the larger of the two sizes is a 'good buy,' and by how much." Maybe moving decimal points over a place or two, or multiplying by 2 is not too hard for most of us to figure out, but when I am shopping for a week's worth of groceries wheeling my three-year-old around in the shopping cart, I for one do not want to have to stop and compute these comparisons between one package size and another, and/or between one brand and another. In my opinion, unit pricing will be even more important during conversion and for a long time to come. It is premature, if not downright irresponsible, to forecast such "fringe benefits" at this time.

In addition to unit pricing, item pricing will be of particular importance. According to a recent study by the University of Michigan, item pricing is the single most important element in consumer awareness and retention of price information. With the increased use of computerized checkout systems paralleling the process of metrication in the United States, the importance of item pricing becomes even greater. I would urge all retail food store

representatives to keep this in mind when launching into a computerized checkout system.

Some \$9 billion worth of goods are sold a year—a substantial part of which are packaged goods. Rational packaging standards absolutely must be developed, not only for food products, but for laundry products, cleaning products, and other items of similar import. Where clothing is concerned, standard sizes would be an enormous help to consumers.

However the standards may be developed to govern package sizes, and whatever changes may be made in packaging products, consumers should be informed of any and all costs associated with conversion to metric measurements. The Canadian government has recommended that whenever possible package sizes should be increased and that any price increases associated with conversion costs should be separate in time from price hikes that may occur for any other reasons. Industries which do divulge the reasons behind price increases to the public will go a long way toward eliminating any potential suspicions consumers may have regarding what they are paying for when they buy a given product.

These five areas—personnel, unit pricing, item pricing, rational packaging sizes and pricing information—will be the most crucial keys to opening the door to public acceptance of metrication.

On yet another level of consumer acceptance of conversion is the need to address the questions and concerns that will come up constantly as the public's awareness of metrication increases. Some of these questions might be:

- How will my utility bills be affected?
- How will I know how much of my food dollar will pay for the metrication of food packages?
- Will I still be able to get parts for machines and appliances made in customary measurements?
- Will I need to replace any kitchen equipment?
- How will metric measurements affect home furnishings or major appliances?
- Will car repairs cost me a lot more? Who will pay for new tools that must be used for these repairs?

Consumer groups might be asked to record the kinds of questions and concerns they encounter, and pass these on to relevant businesses or government agencies.

There are many other possible ways in which consumers and/or consumer groups might assist in smoothing the way for metrication. Many groups publish newsletters which could be used as vehicles to educate the public, particularly in response to the kinds of consumer concerns mentioned above. These articles might also

include basic conversion information as well as substantive information explaining the roles of business, government, and schools, information and progress reports on the issues of rational standardization, conversion costs, and economic impact.

Government and industry have asked for input from consumers and consumer groups. The American National Metric Council, for example, sent a letter to groups around the country and received a good number of favorable responses. Government and industry should utilize the many resources available to them to develop and implement more outreach to consumers. Consumer group spokespersons are motivated to understand and help promote public education and acceptance of metrication, yet the particular methods by which this might be accomplished are somewhat obscure. One of the most important aspects of encouraging consumer input, is making compensation available for the research and development of independent consumer studies. Whenever such compensation is available, consumers should be fairly notified and allowed sufficient time to respond.

All of us are aware of the tremendous benefits that will ultimately occur as a result of conversion. This is an excellent opportunity for industry in particular to broaden communications with consumers, and thereby establish better working relationships with the communities they serve.

MORNING SESSION—WEDNESDAY, JULY 14, 1976

(held at National Bureau of Standards)



Opening ceremony by U. S. Marine Corps Ceremonial Color Guard and Musical Unit

WELCOME TO THE NATIONAL BUREAU OF STANDARDS

Presented by DR. F. KARL WILLENBROCK, Director, Institute for Applied Technology, National Bureau of Standards



It is a distinct pleasure for me to have been designated as the one to welcome you officially to the National Bureau of Standards this morning. In many ways, it is better than being an "after-dinner" speaker and having to dilute a two-minute idea into a two-hour speech. And to prove that I mean what I say, I'm going to make sure that my remarks fit into the category of "best" speeches—a good beginning and a good ending—CLOSE TOGETHER!

This year at NBS we are having two celebrations. First, of course, is the Nation's 200th birthday, and, second, is the Bureau's 75th. We are very pleased to be able to share both with an old friend and partner. Anniversary celebrations provide the opportunity to reflect on the past but, more important, to plan for the future. Last year I had the pleasure to keynote your Conference in San Diego. My first four words then were, "America is going metric." These few words were given impetus by Congress' enactment, last December, of the Metric Conversion Act of 1975. Now you have taken up this thought as your theme for this Conference. We at NBS are aware of the role we play in supporting the weights and measures system in the United States. We will do our best to continue to help you serve and meet the metric needs of this system through the National Conference.

The last time the Bureau hosted the National Conference was back in 1967, shortly after the Bureau moved from Connecticut Avenue to Gaithersburg. To be exact, it was Wednesday, June 28, 1967, and to show that technology isn't the rapidly changing monster it is supposed to be, participants in today's Conference used the same technology to get here that your colleagues used nine years ago—a bus!

Quite a few interesting things have happened to the Bureau since you were last here. Our trees and shrubs have grown up and our grounds are a showplace in Gaithersburg. We now have a Sound Building with anechoic and reverberation chambers. These chambers are so soundproof that last spring members of the world-famous Juilliard String Quartet came to the Bureau and used the chambers to compare the acoustical properties of their

own rare 17th and 18th century instruments with a matched set of new instruments made by a Massachusetts instrument maker.

We also have a Concreting Materials Laboratory in which we prepare samples of concrete and cement for testing laboratories to test their own capabilities.

We have a Nonmagnetic Laboratory which, in fancy words, measures the magnetic fields of the earth but also calibrates such instruments as magnetometers that hang from aircraft to locate iron mines and other sources of iron ore.

We have a townhouse fitted with solar collectors so that we can develop standards for the solar heating and cooling systems for homes and a three-bedroom, one-story house, fully instrumented, so that we can measure the amount of energy used by a homemaker in preparing three meals a day for a family of four.

A fairly new addition to NBS, 1974 to be exact, is a fire research laboratory for conducting large-scale fire experiments. Right now, it is necessary to burn down an entire room to study the spread of fire in most buildings. With our laboratory, in a few years, we will be able to do it for you on a computer. We are studying the burning of room furnishings and how the materials contribute to a building fire. We are studying the movement of smoke and gas through rooms and corridors. We also test structural components such as ducts, dampers, doors, and plumbing systems in a research test furnace. One of our recent fire projects brought us a certain amount of notoriety. In a technical area, that's not too easy to do on the Washington scene today because of the competition we are getting from the members of Congress. What happened was that one of the new buses operating in the Washington, D.C., transit system burned and the transit authority asked us to investigate it. We found that the interior furnishings of the buses were quite flammable and we made recommendations for correcting it. Little do the Washington bureaucrats know that when they ride the metrobus on Capitol Hill, NBS has literally taken them off *one hot seat*.

Our latest addition to the Bureau is the installation, on either side of the road that leads to the high-rise Administration Building, of the two entrance portals and the iron gates that were originally located on the old Bureau site on Connecticut Avenue. This shows that although our buildings and grounds are new, our roots are imbedded in tradition. And what better example do we have of a traditional activity, one of which the Bureau is justifiably proud, than our relationship with the weights and measures administration of the United States. The National Conference is a model of an excellent example of Federal-State relationship which other Federal agencies would do well to emulate. We have had a long and fruitful relationship in the past and in this our 75th

anniversary year, we promise to make every effort to ensure that the relationship continues.

It has been my job to speak and yours to listen. I do hope we both finished at the same time!

NBS AND NCWM—PAST, PRESENT AND FUTURE

Presented by DR. ERNEST AMBLER, Acting Director, National Bureau of Standards



Good morning, I should like to join Karl (Willenbrock) in extending the warmest welcome from the entire staff of the National Bureau of Standards. It is especially pleasing for us to have you visit during this, our 75th Anniversary Year.

The first conference on weights and measures was opened with these words:

“The relation between standards and the regulation and inspection of weights and measures used in commerce is so important that cooperation between the officials having these matters in charge is absolutely essential to secure uniform, efficient results. It was for this purpose that the various state custodians, inspectors, and sealers were invited to meet with the officials of the National Bureau of Standards. As the representative of that institution, it gives me great pleasure to welcome you to this conference, which cannot fail to be productive of the utmost good.”

These words were spoken by Dr. Samuel Stratton, the Director of NBS, in welcoming the first National Meeting of Weights and Measures Officials in 1905. In this, my first address as President of the National Conference, I chose to repeat Dr. Stratton's words because the need for cooperative interaction is equally important today. Furthermore, I personally feel as committed to the goals of this organization as did Dr. Stratton in those fledgling days.

Much has transpired in the intervening years, not the least of which are some face changes here at NBS and in the Department of Commerce. Dr. Richard Roberts left the Bureau last summer to accept the position of Assistant Administrator for Nuclear Energy at the Energy Research and Development Administration (ERDA). Recently, President Ford placed my name in nomination to be Director of NBS. I expect to testify before the Senate Commerce Committee within the next few weeks.

We also have a new Secretary of Commerce, Mr. Elliot Richardson. In the few months since his appointment, the Secretary has shown a great deal of interest in NBS and its various activities.

During his first visit to NBS the Secretary addressed the Bureau staff. He began by telling a story from ancient Persia. It seems that a rug merchant called to his assistant, "Haman, hand me the measuring stick." Haman replied, "Which one, Master? The one by which we sell or the one by which we buy?" The Secretary said, "There was a country that needed a Bureau of Standards." And I should like to add, there was a country that needed a National Conference on Weights and Measures.

I repeat the story because it highlights the continuing need for fairness in the marketplace, the need for honest communication between buyer and seller and, most importantly, the need for a basis of understanding between the interacting segments of a complex society.

And, I am pleased that for 75 years NBS, in conjunction with NCWM, has developed, maintained and disseminated a national measurement system. This system has successfully served as the reliable tool of communication between buyer and seller.

At this point, someone might say, "how wonderful! You have solved the problem." And now the rug merchant will have only one measuring stick.

The truth of the matter, as you and I both know, is that there is no such thing as a "solution" in the absolute sense of the word. Instead, we strive for adaptations that meet the current need, knowing they may be modified as our environment changes. To quote again from Mr. Richardson, this type of action might be termed "progressive adjustment."

It is my opinion that since 1905 the actions of this Conference have resulted in progressive adjustment to the economy of this nation. Dr. Stratton correctly foresaw that the first Conference would be "productive of the utmost good." I expect that this 61st Conference will be the same.

To do so, it is important that we properly measure and understand today's environment, appropriately plan for any modifications, and begin now for tomorrow's progressive adjustment.

When we look at today's environment, we see an increasingly complex society. It is a complexity which continues to grow proportionately with the product of such multipliers as increased urbanization and the many by-products of industrial production. We see the manifestations of this complexity in the issues such as consumer concern, energy conservation, environmental protection, and materials shortage.

All of these issues directly affect today's citizen and his activities in the marketplace. As the effort and time necessary to

resolve these issues increases, we find the citizen losing confidence in institutions.

We speak of the erosion of confidence in government. The erosion of confidence in industry. In pursuing this notion of lost confidence, it is my fear that we may be losing confidence in ourselves. After all, each of us works directly or indirectly for government or industry, and collectively, we are the public. Thus we are faced with the challenge of restoring self-confidence in each other in a complex environment.

This is an important consideration for everyone. But for each person here it is a specific responsibility to develop and maintain confidence in the most basic of societal arenas: the marketplace.

In approaching this issue, I am reminded of the remark made by the great naturalist John Burroughs, "To find new things, take the path you took yesterday."

Thus, in the face of today's environment, and in recognition of this Anniversary Year, it seems appropriate to review the path we took yesterday, to examine the crossroads we stand at today, and then to look towards tomorrow.

To review yesterday's path we might begin with the establishment of the National Bureau of Standards on March 3, 1901. In that same year, Louis Fischer made a compilation of the State laws relating to weights and measures. And what a hopeless tangle was revealed! Regulations were as remarkable for their variety as for their inadequacy. Besides the inequities and inherent lack of uniformity, there was general apathy across the nation concerning the inadequacies of weights and measures.

Determined to remedy the problem, Dr. Stratton proposed to the governors of each State a meeting of State sealers. The "First Annual Meeting of the Sealers of Weights and Measures of the United States" was held at NBS on January 16 and 17, 1905. In addition to Stratton and Fischer from NBS, the attendees included:

State sealers from Pennsylvania, the District of Columbia, Massachusetts, Virginia, and Iowa; the Deputy Treasurer of Michigan; a private citizen from New Hampshire; a congressman from Kentucky; and a scale manufacturer from Vermont.

This meeting concluded with a resolution that State sealers meet annually in Washington—and work together toward uniformity in weights and measures legislation.

In 1906 the delegates established this National Conference as a permanent organization. And as Dr. Stratton so clearly recognized in 1910, "It is through this body that the Bureau reaches the public, ascertains what it needs in respect to weights and meas-

ures, and what the conditions are throughout the States. The benefit is mutual." I might add that through the years we have received from your committees the benefits of a close contact with the public, and we hope you receive from the Bureau support necessary to do your job.

The NBS-NCWM partnership has been diligently dedicated to the motto, "That equity may prevail." Our Conference now represents one of the finest partnerships between Federal and State governments—benefiting this nation's economy and its consumers.

One of the first issues considered by the Conference was the need for laws and regulations, and in 1907 the Conference reported out "Suggestions for National and State Laws Adopted by the National Conference on Weights and Measures at the Third Annual Conference." This first version of Handbook 44 was a bold move on the part of the delegates. It was to become the very keystone of this organization for it made clear the intent of the National Conference.

The thirty-four sections spelled out proposed national laws, local laws and general regulations. It called for both uniform regulations and the means to implement them. It was eventually to encourage and insure the economic well-being of the citizens of our nation and the economic growth of the nation as a whole. For while we are a nation that welcomes diverse views and opinions, in weights and measures it is uniformity that benefits all.

As a result of the widespread public demand for better law and better inspection of trade weights and measures, first New Jersey and then other States enacted the model law developed by this Conference. In 1913 the State of New York estimated that annual savings to consumers amounted to \$15 million. Today, it would be impossible to calculate the economic benefits traceable to Handbook 44.

Even the briefest resume of the accomplishments of this Conference would be remiss without a mention of State training programs. Through the years there has been strong cooperation between individual States and NBS to assist in the training of weights and measures officials.

In the 1950's, Mac Jensen and Bud Wollin recognized the need for a formal training program. Currently NBS offers three categories of training: for metrologists, for inspectors, and for administrators. This formal training is an acknowledgment that equity is in the hands of the person who uses the standards, the person who interprets the laws and regulations, and the person who certifies the jurisdictional standards.

I personally endorse and support the need for a uniform and comprehensive training program at all levels. One of the goals of the NBS Office of Weights and Measures is to provide training to encourage uniform enforcement of weights and measures laws

and regulations on the one hand and to raise the competence level of the weights and measures officials on the other.

I should like to cite the training program for metrologists. This effort has raised and helped to maintain the quality of metrologist services that are so essential to the individual inspectors. In addition, this higher quality service has improved the efficiency of industry. Formerly, individual firms often sent standards to NBS for calibration purposes. Now, these firms send them to their respective State Weights and Measures laboratories.

I have mentioned the partnership dedicated to equity, the development of the model laws, and the training of the officials. There is another element that is essential. That is the standards and State laboratories themselves.

With funds appropriated by the Congress in 1965, NBS began a program to provide each State, the District of Columbia, Puerto Rico, and the Virgin Islands with new standards of weights and measures—both customary *and metric*.

Unlike the earlier distributions, the effort since 1965 is a comprehensive response to the States' needs to update and extend their measurement competence. It includes calibrations, laboratory installation, and the training of personnel. It is also a cooperative effort.

The Federal Government provides the actual standards weights, volume standards, and basic instruments. Each of the States has agreed to provide new laboratory facilities and a qualified technical staff.

As a symbol of our lasting partnership, each of the States has given the Bureau a tree in honor of these new standards. Each has a marker indicating the contributing State and the common and botanical name of the tree. The aesthetic and symbolic value of your thoughtfulness does much to beautify this Federal site. This afternoon I hope you will take the opportunity to see the State Tree Grove.

The presentations of the standards of weights and measures have been special occasions both for you in the States and for many of us on the NBS staff. Forty-seven States have now participated, and it is our hope that the program will be completed within the next year.

Where do we stand today? We have reliable standards, well-equipped laboratories, qualified and trained personnel, model laws to assure uniformity, and this Conference that provides the forum for uniformity. However, as I said at the beginning, no solutions are absolute. Rather, we strive for progressive adjustment.

Today, there are three issues which must be considered in any plans we make for the future. These issues are metrication, the rapid development of new technologies, and the concerns of the consumer.

I applaud your selection of "Metrication: A One-Time Opportunity" as the theme for this year's conference. I know that you have heard and will be hearing from other speakers on various facets of this topic.

In considering metrication I should like to suggest that our position today is not unlike that of those delegates attending the first conference in 1905. On December 23, 1975, President Ford signed the Metric Conversion Act of 1975. The Act calls for "consultation by the Secretary of Commerce with the National Conference on Weights and Measures in order to assure that State and local weights and measures officials are appropriately involved in metric conversion activities and assisted in their efforts to bring about timely amendments to weights and measures laws."

I stated earlier that weights and measures standards provide the language of communication between buyer and seller. Just as the delegates to the 1905 meeting were concerned with developing the language of customary standards; we must begin to provide the metric language so necessary for economic communication.

Carroll Brickenkamp, a member of the NBS staff known to all of you, has remarked that in metric conversion, "The weights and measures person will be the first one in and the last one out." Metric conversion will affect laws, regulations, packaging, measuring devices, test methodology, industry production and public opinion.

The point is that our nation is now committed to voluntary metric conversion; and as Malcolm O'Hagan (President, American National Metric Council) has noted, the climate for conversion is greatly improved by the European community's requirements to use SI units in trade and commerce throughout the common market and by the realities of international trade in a metric world.

A primary objective of our Conference today, and in the months to come, should be the development of basic tools for metric communication between buyer and seller. We can help minimize public misunderstanding about metric conversion and we can minimize the potential for mistrust between the affected public and the government. By doing so, I think we can help restore the eroded confidence in both government and industry. The net result will be increased self-confidence in our ability to govern ourselves.

NBS will make full use of our available resources to assist in meeting the immediate metrication demands that will fall on State weights and measures officials. In accord with our responsibilities under the Metric Act, our metric information facilities will be devoted more fully to metric needs in weights and measures.

The Office of Weights and Measures has, with the support of the United States Office of Education, recently conducted a series of seminars on metric conversion for weights and measures officials across the United States. A purpose of these seminars is to educate a core group of weights and measures officials who can serve their own jurisdictions as instructors in metric training.

I am sure the efficient transition to metric will be aided by explicit attention to coordination with domestic and international standards setting institutions. I hope that the Conference through its new Committee on National Measurement Policy and Coordination will give due consideration to the metric recommendations originating in the International Organization of Legal Metrology (OIML). When and where they have U.S. approval, the adoption of OIML metric recommendations would provide an important advantage to our industry and commerce.

The activities of OIML are much more extensive than metrication. Since the U.S. joined OIML, NBS has attempted to assure that OIML positions truly reflect a representative national response. Through the Advisory Committee for International Legal Metrology, chartered in 1974, U. S. representatives include more than a dozen governmental and private sector institutions. This Conference has been an active representative to the Advisory Committee, and we are grateful for your cooperation through Jim Lyles of Virginia. I am pleased Jim will be a delegate to the OIML International Conference of Legal Metrology in Paris next October. This input from NCWM is indispensable if we are to adopt international positions that are in the best interests of the United States.

I also mentioned the issue of rapidly developing technologies. The impact of new technologies affects a broad spectrum of weights and measures activities. The examples are numerous:

- interfaces between scale, cash register and computer;
- in-motion weighing of transportation vehicles;
- new readout devices for fluid and time metering;
- application of digital electronics to truck weighing and railroad scales.

The important point is that each of these new developments involves a change in the functioning of our measurement system. Each changeover poses a challenge for intergovernmental cooperation. We must work in concert with these new technologies. We must assure the public that applications of new technologies in the marketplace will be responsive to their needs.

This brings me to the third issue—that of consumer concerns. In characterizing the attitude of consumers, Elliot Richardson states

that private citizens desire "the right to grant or withhold 'consent of the governed' not only as a voter, but as a consumer, as an employee, as a taxpayer, as a woman, as a black . . . the right to an *informed choice* at the ballot box *and* in the marketplace."

This is a high priority issue for both the Department of Commerce and this Administration. I believe you will be hearing more on this subject from all of this morning's speakers.

At NBS we are engaged in a variety of consumer-related activities. Some of these involve the development of standards and instrumentation to ensure the health and safety of the consumer when he uses such diverse products as bicycles, lawn mowers, hearing aids and others. We are developing standards for home security devices—locks and burglar alarms.

The Bureau's Center for Consumer Product Technology is engaged in programs to develop standards and uniform test methods for measuring the performance and safety characteristics of consumer products. This work ultimately provides the consumer with information about individual product characteristics at the point of purchase. Closely related is our work for the Federal Energy Administration on standards for labeling appliances with respect to their energy consumption.

Of importance to weights and measures interests are some of our Consumer Information series publications. For example, we are now preparing "Automation in the Marketplace," which indicates to the consumer the impacts of electronic funds transfer, the universal product code, and direct point of sale readouts in retailing.

A prime objective of all these efforts is to provide the consumer with information. In turn, this helps industry by reducing the number of needless complaints based on ignorance or poor information. It should also help weights and measures officials in their dealings with both industry and the public by minimizing confusion.

Therefore, we have metrication, the rapid applications of new technology and consumer concerns—three major trends that will affect the future actions of the NBS-NCWM partnerships.

Because of the growing importance of the consumer as an economic and political force, we at NBS are reviewing our priorities for utilizing our resources. We have identified a need to reevaluate our own role in weights and measures. This will require an examination of the whole system of weights and measures and the roles of all participants. We have in this undertaking the support of our Evaluation Panel—the National Academy of Sciences group that reviews NBS programs annually. Mr. Syd Andrews is a member of that panel, as well as a distinguished member of this Conference.

I suggest that you join us in this activity through reevaluation of your priorities in light of your available resources. It will be of inestimable value to the Bureau to have your assistance and guidance in delineating the priority needs of the States.

This then is our goal for the immediate future: to establish our priorities in weights and measures for the best utilization of our available resources.

Our strength and our goals lie in anticipating society's demands and in providing services which make a difference. I expect the NBS-NCWM partnership to continue as an effective and responsive mechanism for providing those services.

It is my privilege, as Conference President, to announce the appointments to the Standing Committees.

The new appointees are:

Committee on Specifications and Tolerances

Mr. Gary L. Delano, Administrator, Division of Weights and Measures, State of Montana, who is appointed to replace Mr. Ken Simila, State of Oregon, whose term is expiring.

Committee on Laws and Regulations

Mr. Maximiliano Trujillo, Assistant Secretary, Bureau of Enforcement, Department of Consumer Affairs, Puerto Rico, who is reappointed to replace Mr. R. L. Thompson, State of Maryland. Mr. Trujillo has served this year as a replacement for Mr. Thompson who resigned from the committee last fall to devote full time to his responsibilities as Conference chairman.

Committee on Education, Administration, and Consumer Affairs

Mr. Steven A. Malone, Administrator, Division of Weights and Measures, Department of Agriculture, State of Nebraska, who is appointed to replace Mr. R. T. Williams, State of Texas, whose term is expiring.

Committee on Liaison with the Federal Government

Mr. O. D. Mullinax, Director, Fuel and Measures Division, Department of Agriculture, State of Georgia, who is appointed to replace Mr. Wallace N. Seward, American Petroleum Institute, whose term is expiring. Mr. Charles W. Silver, President, Revere Corporation of America, who is appointed to fill the unexpired three-year term of Mr. C. G. Gehringer, Pennsylvania Scale Company, who has retired.

Committee on National Measurement Policy and Coordination

Mr. Sydney D. Andrews, Director, Division of Standards, Department of Agriculture and Consumer Services, State of Florida, is appointed to the Committee for the ensuing year and will serve as its chairman.

The accomplishments of these committees are an invaluable contribution to the success of the Conference. I would like to thank those individuals who have provided hard work and dedicated service over the past year. We all thank you. And to the new members, my congratulations and best wishes on your appointments.

PRESENTATION OF HONOR AWARDS

Dr. Ambler presented Honor Awards to members of the Conference who, by attending the 60th Conference in 1975, reached one of the six attendance categories for which recognition is made—attendance at 10, 15, 20, 25, 30 or 35 meetings.

Award Recipients	
35 Years	
CLEO C. MORGAN	Gary, Indiana
30 Years	
SAMUEL H. CHRISTIE, JR.	New Jersey (retired)
25 Years	
KENNETH C. ALLEN	Hobart Corporation
GEORGE L. JOHNSON	Kentucky
20 Years	
ROBERT J. SILCOCK	Vigo County, Indiana
15 Years	
ARMAND J. ALBANESE	New Britain, Connecticut
EVERETT H. BLACK	Ventura County, California
WARREN J. DUBSKY	Dresser Industries, Inc.
JOHN H. LEWIS	Washington

J. LYLE LITTLEFIELD
JAMES F. LYLES
GEORGE D. WILKINSON

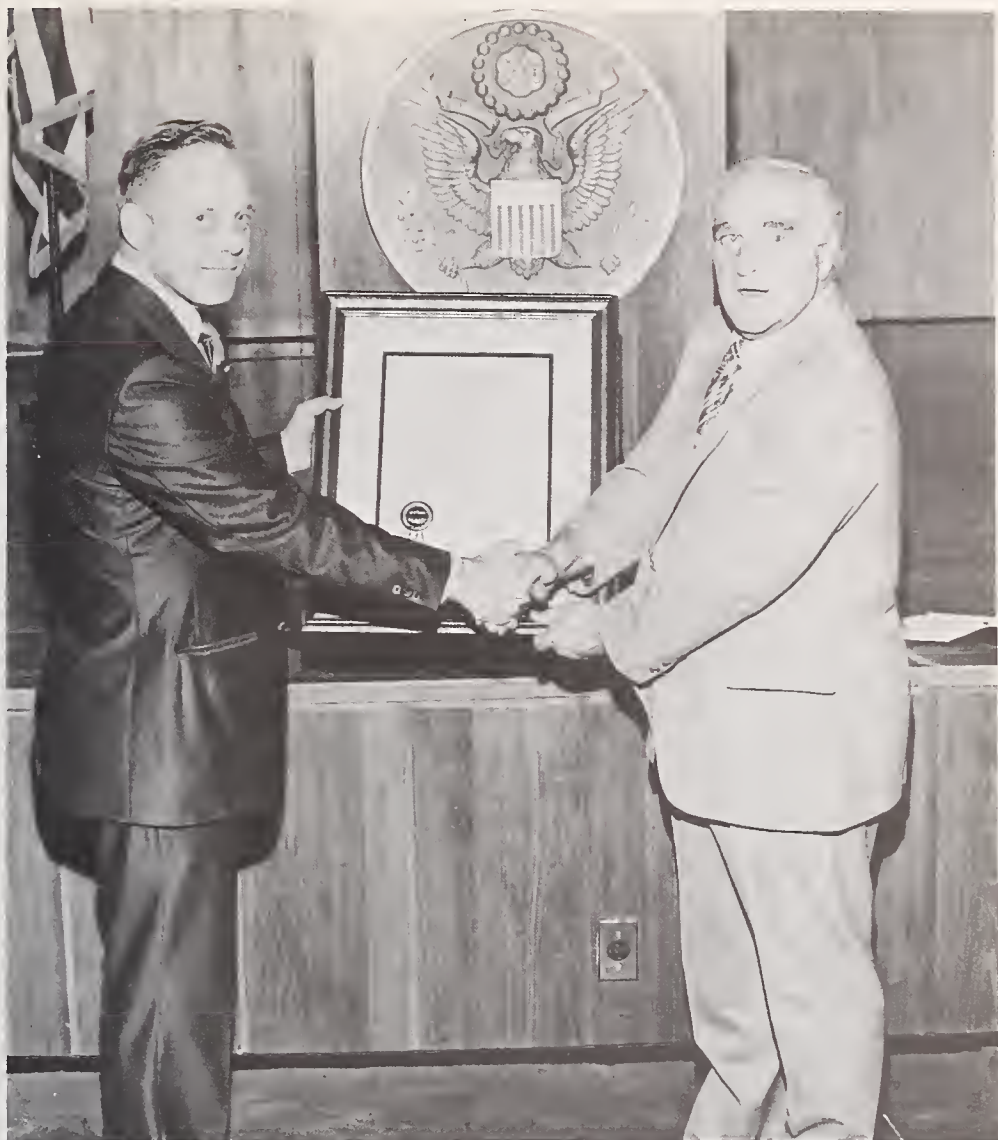
Gerber Products Company
Virginia
Howe Richardson Scale Com-
pany

10 Years

TRAFFORD F. BRINK
ROBERT L. CALLAHAN, JR.
EUGENE H. FISHMAN
A. J. FRANCESCONI
EDWIN HANISH
HARVEY L. HENSEL
LYMAN D. HOLLOWAY
EUGENE KEELEY
WILLIAM H. MARKS
T. J. MCCLAUGHLIN
EARL PRIDEAUX
ROBERT C. PRIMLEY
WALTER D. SCOTT

E. I. SHELLEY
EDWARD G. SILVER
H. E. SMITH
BERNARD WASKO

Vermont
Coca-Cola Company
J. B. Dee and Company, Inc.
Camden County, New Jersey
LaPorte County, Indiana
Swift and Company
Idaho
Delaware
American Can Company
Veeder-Root Company
Colorado
Cities Service Oil Company
Allegheny County, Pennsylv-
ania
Martin Decker Company
Floyd County, Indiana
San Mateo County, California
Volland Corporation



On behalf of the National Conference on Weights and Measures, Richard L. Thompson (left), Chairman of this year's National Conference, extends congratulations to the National Bureau of Standards on its 75th Anniversary by presenting Dr. Ernest Ambler, Acting Director of the Bureau, an anniversary plaque.

The National Conference
on Weights and Measures
extends Congratulations to the
National Bureau of Standards
upon the occasion of its
Seventy-Fifth Anniversary
and in

Recognition of its outstanding leadership and accomplishments in science and technology; its encouragement and assistance in promoting standardization of measurements and instruments; and its achievements in the science of metrology which have contributed to the public welfare by increasing the accuracy, dependability, and uniformity of weighing and measuring throughout the Nation.

Presented by the
61st National Conference on Weights and Measures
on July 14, 1976



Richard L. Thompson
Chairman

Harold F. Wallin
Executive Secretary

ADDRESS

Presented by HONORABLE S. JOHN BYINGTON, Chairman, U.S.
Consumer Product Safety Commission



It is a pleasure to meet with you today to explore some thoughts about what may be common problems as well as to join with you in the celebration of the 75th Anniversary of the National Bureau of Standards.

Just think what 75 years means. That was before the age of flight. There were no cars, televisions or other items so commonplace today.

But the division of years has not erased some similarities of interests. Even then, some Americans were getting steamed up about the Panama Canal. And let us not overlook the heated debate about standards. At that time, the hottest issue in town was the gold standard.

Some standards are not easy to come by. We at the Consumer Product Safety Commission (CPSC) know that full well by now . . . after all the criticism (some of it well-deserved) that we have received for the delays we have encountered in preparing standards for power mowers, architectural glass, etc. But people forget that it took French engineers seven years to determine what a kilometer is. Yet, even after meticulous work, there are times when all that effort does not seem to matter. A mischievous child couldn't care less if a yardstick was 35 inches or 37 inches when it is used as a measure of discipline.

The lack of a fixed standard doesn't always impede progress either. At the turn of the century, there were some places in China where it was the custom among home builders to first make a measuring stick. This stick was then used for the purchase of materials and for determining dimensions.

In the United States, the power to regulate weights and measures was vested in Congress. I was amused to discover that an encyclopedia (New International) published in 1904 took note of that authority. The author of the article added somewhat cynically that Congress had not attempted up to then to exercise its authority—except in regard to standards for the collection of taxes.

Obviously, the National Bureau of Standards has brought us a long way toward uniform standards; and obviously, your relationship with the Bureau has given substance to those standards.

Our relationship with the Bureau has been profitable, too. In fact, there is an elite corps of former Bureau personnel in the Consumer Product Safety Commission. One of that number, of course, is Commissioner Lawrence Kushner, who was Acting Director for the Bureau before his appointment to the CPSC. Another member of our staff is Ross Koeser, who not only is from NBS but also was a member of this very weights and measures fraternity.

The Commission was created just a little more than three years ago. Its assignment is to:

- Protect the public against unreasonable risk of injury associated with consumer products;
- Assist consumers to evaluate the comparative safety of consumer products;
- Develop uniform safety standards for consumer products; and
- To promote research and investigation into the causes and prevention of product-related deaths, illnesses and injuries.

Just as Congress established the Bureau of Standards in 1901 to bring order out of chaos in weights and measures, The Congress created the Consumer Product Safety Commission to help restore consumer confidence in safety in the marketplace.

Often we at CPSC find ourselves turning to the Bureau for advice and assistance in pursuit of our goals.

At the present time, about 15 research projects, 25 regulatory development tasks and a number of hazard reaction studies are in process at NBS through an interagency agreement.

The Bureau has been of significant help in regard to work already done on flammable fabrics. It is supporting the development of various projects underway in the Commission as well as some completed tasks, including a regulation on swimming pool slides, and another on bicycles.

Our Commission has about 10,000 products to be concerned about. According to Commission data, more than seven-and-a-half million injuries related to products were treated in hospital emergency rooms around the country in Fiscal Year 1975. So there is much work to be done. Only part of it, of course, involves drafting standards.

The government has a definite role and substantial responsibility to regulate wherever and whenever the marketplace is not adequately protecting the interests of consumers. Therefore, the injury data suggests that product safety is an area of legitimate government concern.

The Commission's challenge is to separate acceptable risks from unreasonable ones.

When contemplating a given product safety action, the Commission must balance on the one hand the human gain in the form of lives saved or injuries prevented and any value attached to that gain. On the other hand, there is the adverse effect, including the cost, usefulness or supply of the product involved.

Such a balancing test requires weighing a sophisticated set of human values and standards requiring complex judgments about the relative merit of alternative—sometimes competing—social and economic goals.

Congress provided that these balancing decisions should be made by a collegial body that would bring to bear a variety of experience, expertise and values so that the weighing and balancing process could be as thorough, representative, and informed as possible. I see my fundamental responsibility as Chief Executive Officer to make that balancing process work and to assure that the staff of the agency informs its Commissioners on all elements that should go into that balancing process.

After this process is completed, where we find products posing an unreasonable risk of injury, I am strongly committed to taking an aggressive role in using the full powers of the agency to make the marketplace safer for the consumer.

However, I want to state clearly that the “Age of Infancy” at CPSC is over! No longer can we claim infancy as a regulatory agency as an excuse against legitimate criticism. Three years is long enough to “get your act together”—and that is what we are doing right now. . . “getting it together!”

We are looking at where we have been and was it worth it, and we are looking at where we are going and why! We are not only undertaking a critical self-examination, but we are also analyzing our relationships with others—NBS, the States, various contractors and the like.

Last week, the Commission passed a policy guideline that not only sets out the mechanism for establishing priorities within CPSC, but also delineates the factors that will be used in making these determinations. These factors include:

- Frequency and Severity of Injuries;
- Casualty of Injuries;
- Chronic Illness and Future Injuries;
- Cost and Benefit of CPSC Action;
- Unforeseen Nature of the Risk;
- Vulnerability of the Population at Risk; and
- Probability of Exposure to Hazard.

We are now in the process of developing indepth profiles on the major products and product categories in line with these criteria. We are aware that there will be data holes in the analysis. But if

we can make a first cut at such an effort, we will be in a much better position to know where our data strengths and weaknesses are. Then we can go about our responsibility building on our strengths and working on our weaknesses.

The Commission is an enforcer, standards-setter, educator-informer and planner-researcher.

Whether we like it or not, it is the power of enforcement that gives credibility to our rules, regulations and standards. All the plans, standards, educational programs and research designs the Commission may develop with Bureau help are for naught unless the Commission has and is willing to use the strong set of penalties built into its total program structure so as to effectively eliminate hazards presenting an unreasonable risk of injury. However, we are looking for innovative ways of stimulating voluntary compliance with the Commission's standards, rules and regulations. I would welcome from you ideas based on the experience you may have had in the compliance area.

Certainly this organization has set for us a model of Federal-State cooperation. Our Commission is trying to expand and improve its own Federal-State cooperative efforts. This was begun within days of the activation of the Commission when its first Chairman wrote to each of the Governors asking that an agency or individual be singled out as the point of contact in the field of product safety.

Since that time, we have developed working relationships in a few states, and in fact, I understand that we work specifically with some weights and measures persons in a very active way. Connecticut, West Virginia and Wisconsin come to mind.

One of my top priorities is to substantially expand our relationships with the States in the field of consumer protection.

The Commission has the capacity to commission qualified State and local employees to assist in some areas of our work. We can accept State and local services, and we can pay for these services.

Certain efforts of Federal-State cooperation have been outstanding. About 45 States supported the Commission when it was necessary to remove from the market banned spray adhesives. About 32 States helped when we were campaigning against unsafe toys. And just this year, 48 States participated in helping with the removal and destruction of imported yarn that may have been contaminated with anthrax.

A more formal on-going, year-round, work-sharing program has been developed between the Commission and the State of Washington in the field of poison prevention packaging. We look forward to more of these types of cooperative efforts.

Just last month, the Association of Food and Drug Officials endorsed model State legislation that parallels the Consumer

Product Safety Act. This, too, presents a fertile field for Federal-State cooperation in consumer protection.

Ideally, the business of consumer protection is of fundamental concern to business itself. We shall be calling on business to encourage new technology and processes with an eye toward safety performance. In addition, the Commission will be calling on industry for help in the role of consumer education.

The role of consumer education in the safety area is perhaps more critical than many originally thought. If it is true as some seem to suggest that something less than half of the total products-associated injuries are preventable through standards making, then there is definitely a need for well-designed consumer education strategies. And after all, business and industry know much better than any government agency the most efficient and most effective ways to reach the users of their products.

Businessmen might consider more prominent warnings about the limits of safe use and dangerous misuse, greater emphasis on safety-training programs for retailers—especially at the point of sale—greater information about the more probable dangers and side effects of normal use and more prominent disclosures and publicity for methods of maintenance that reduces the chances of accident due to malfunction.

Whatever their concerns, the Commission has an open door. Companies, trade associations, State representatives, and individuals can and do meet with staff members to thrash out problems. To assist in maintaining contact with CPSC, we have Area Offices in 13 cities and resident posts in 21 other cities.

These Area Offices are in regular contact with the headquarters in Washington. And, where there may not be an immediate answer in the Area Office, the Area Office can pass along the question and get assistance.

I hope all of you have developed a working relationship with our Area Offices. And I want to assure you that I consider each of our Area Office Directors to be my alter ego! They are now . . . and will continue to be brought into both the policy development as well as the policy implementation process. They will know—and be a part of what is happening in Washington—just as we will know and be a part of what is happening around the nation. So I hope that each of you will build upon the ties that you have already formulated—or are formulating—with our people around the country.

By this time, I hope you are convinced that I think we have a legitimate job to do.

I also think we can do it efficiently and economically. With improvements in Federal-State relationships, signs of progress in

corporate responsibility, and constructive self-criticism, I truly believe that there is no need for consumer protection in product safety to become a government rip-off. Product safety can and must become one of the best "buys" in the marketplace!

ADDRESS

Presented by HONORABLE YOUNG D. HANCE, Secretary,
Maryland Department of Agriculture



I am indeed flattered to appear before this distinguished group. In addition, I am pleased that you would consent to spend a few minutes with me after hearing from such distinguished speakers this morning.

Let me begin by extending to you a very warm welcome to this area of the country. Hopefully, we in Maryland have provided you with acceptable and proper weather while you were enroute here this morning. I'm sorry we couldn't do better as far as the traffic is concerned, but let me extend to you the Maryland Department of Agriculture's full cooperation. If we can do any thing to make your visit more pleasant, please don't hesitate to let Dick Thompson, Lacy DeGrange or any of us know. We will be most happy to help in any way we can. I am proud of the staff we have here in Maryland and evidently you, too, have displayed the same confidence by selecting Dick Thompson as Chairman of the 61st National Conference on Weights and Measures.

I suppose the greatest problem that has faced us in the Maryland Department of Agriculture, and I am certain in other States across the country, is the reduction in budget. I experience real frustration when I think about this because my first objective is to make our organization a good Department of Agriculture representing the interests of agriculture, the consumers and businesses of Maryland; that is, all the citizens and the tax payers. I want to build those programs which are beneficial to the interests which we serve. Yet, I am also a tax payer; when I think that we have to have more funds, I am concerned that it may mean raising my taxes, your taxes and everyone else's taxes. One becomes very concerned when standing before a Senate or a House Committee saying, "We need more money." I think you can see the source of my frustrations.

One thing the reduction of funds has demonstrated to me, however, is the degree of dedication we have in Maryland's Weights and Measures Section. These people are doing more than that which is expected of the average government employee. They are going above and beyond the call of duty and, based on what Dick (Thompson) has told me about his counterparts in other States and local governments, you are doing the same thing; I am very proud that we are on the team together, that we have the same objectives and that we're doing the same things.

I prefer to think of weights and measures as something more than just a regulatory program—enforcement officers, so to speak: "Pull over, you're driving over fifty-five; your packages are not labeled; you're in trouble," that sort of thing. I like to think of us as also being something of a service organization. In my life, I found that people are generally honest; they want to deal honestly with their neighbors. I believe, by and large, that industry is basically sincere in wanting to provide the consumer with that which is expected in the package, or with the item they are presenting to their customers. We're not only assisting the consumer; we are assisting the industry in doing those things, for the general public, which is expected and which also means fair profit to business. Once industry loses sight of service to the community and to the nation, their business will begin to deteriorate. There is, however, much that we need to do and it is not solely related to development of laws and regulations.

At present, you and I are faced with a very uncomfortable situation. It's disheartening to realize that many people in this country have lost confidence in their employees, both at the state and Federal level. We must work twice as hard to overcome this attitude and it is difficult; we are frequently reminded by some thoughtless individuals that one cannot expect integrity and honesty from government officials. You as weights and measures officials and people in my position have to develop the ability to let these comments roll off our backs. Unfortunately, many of you are probably of my disposition; I can't seem to leave my problems at the office. This concern, however, is what makes you worthwhile people and effective government employees, serving your towns, your counties and your States. I am certain the citizens, for the most part, are grateful for the job you do.

There are other uncomfortable and unfortunate situations faced by weights and measures officials. While many may not be aware of them, I know you sometimes face and receive abuse. It is during these times that you are really the unsung heroes. I can visualize a situation where the device owner may have some forty or more grain trucks ready to weigh and unload and you must say to him, "Your scales are incorrect; you've got a problem." Certainly, many

of you have been called names other than your own. In defense of the scale owner, however, I would like to believe his reaction results from the frustration he must face in each day's activities. There have been many mornings when I wish I had stayed in bed and I am sure you have experienced the same feeling. This is the professional life you have chosen, however, and knowing the weights and measures people in Maryland, I'm certain you're the type of individuals who do not need advertisement and publicity in order to be motivated to excellent performance. It has been my observation that, as long as you are personally satisfied and are recognized by your comrades, those people with whom you work on a daily basis, and your families, that this is really the chief motivation and the point of greatest importance. There are many things that I could talk to you about in this vein, but time moves along and I would like to discuss some other areas.

You know, upon assuming the responsibilities of the new Maryland Department of Agriculture, I immediately became the most frustrated bureaucrat in the State of Maryland. It appeared to me that the Environmental Protection Agency (EPA) was attempting to accomplish many things without an effective or appropriate ear directed toward the States. There are various agencies in each State which have long had experience in some aspects of the environmental protection field and were familiar with some of those things EPA was attempting to accomplish. These State government people were also aware of the frustrations that would be experienced by Environmental Protection personnel and, in addition, had some knowledge of the frustrations that they would cause. For three and a half years we have worked diligently to effect adequate communications with those people and now it appears that we can, at least, discuss their proposals and help determine if they will work.

More recently we're talking about clean water standards; we are discussing air pollution and, among other things, noise control. It appears that standards will be developed for these areas, but they must be developed so that they are applicable to the situation and can be applied in a practical manner. If this is not accomplished, this country could find, one day, that it has little of all the great things that have made our lives so pleasant. The people working on these items have a very important role and it's up to you and people in my position to continue bringing the needs of your State and mine to their attention.

Before proposals are developed, I wish they would be explored carefully with the National Bureau of Standards. As an example, I would hope that the design and performance of fuel devices with vapor recovery systems had been explored with all agencies having an interest in them. Perhaps that did occur, but I sense

that weights and measures officials had little input in the development of vapor recovery systems and, because of that, real problems for some responsible State agencies will occur. They will continue to occur, unless future problems will be resolved in a manner which is workable for everyone.

More recently, the Occupational Safety and Health Act (OSHA) has appeared on the scene and the people working in this area, regretfully, are approaching their problems in the same manner as the EPA did. Electrical standards, ladder standards and others are being and have been developed. It's important that the federal agencies go to the best or, at least, an appropriate source. This is important in order to make certain that those things they will propose are going to work well. We require proposals that the States, their industries, their agriculture and other affected segments can work with.

I am not certain the National Bureau of Standards recognizes that it is a unique agency, but it is. It has the ability to put many people in the field, acting as its eyes and ears. You are those people and you can report back to NBS and show its leaders the needs of the citizens throughout the country. I have a strong feeling that there are agencies in Washington which really don't know what the people want; they don't understand about the practical and real life. Certainly, I don't refer to the National Bureau of Standards in that statement, because the Bureau is a bright spot when it comes to helping develop realistic standards. We, in State agriculture, have lawyers and other staff members attempting to develop standards in an effort to comply with new regulations. It is difficult to accomplish this on our own, and the aid of NBS, in some areas of that activity, has been extremely helpful.

If the National Bureau of Standards continues to use available people wisely, and continues to use the resources of the States wisely, there is a terrific potential here. In my opinion, the people leading NBS have more of a feel for cooperation and using talent than most of the other agencies' State departments of agriculture deal with each day. I'd like to extend my congratulations to all the people within the National Bureau of Standards; they have done an immense job and they have performed an important service to you and to all the citizens. I think it is important, however, that on their 75th birthday, they do not rest upon their laurels. They must recognize that there are many challenges, one right after another, with all the new proposals that are arriving on the scene.

I believe the States can offer a great deal of help to the Bureau of Standards through their commissioners of agriculture. It is my observation that these individuals exercise some influence with our legislators in Congress. There is evidence that the Congress

listens to these people and they can be a great deal of help. I think the Bureau leaders should recognize this and give us an opportunity to assist them in needs that you and I believe should be addressed. As an example of one such need, we have a real problem here in Maryland. There have been no standards developed for flouride emissions and it appears that this country has about three or four "experts," each of whom says something different. Where does this leave the Maryland Department of Agriculture or any other agency which has to manage a flouride monitoring program? How does one determine a safe or permissible level of flouride emissions? This is an area in which we need help and there are many such areas in which we will find ourselves requiring assistance.

The adoption of standards such as Handbook 44 by the National Conference on Weights and Measures is excellent and, based on this, I urge you ladies and gentlemen to move forward on Handbook 67. We need an updated H-67, so please continue in your efforts. Hopefully, the foreseeable future will produce a revised H-67, enjoying the same acceptance as H-44.

In the early 1960's a significant measurement problem became apparent to many of us. It was one which gave the agricultural leadership of Maryland a great deal of concern. I am speaking, now, of moisture testing in grain. There has been constant difficulty in developing a practical method for accurately determining this moisture. Obviously, moisture meters are used in Maryland and the Maryland Department of Agriculture has embarked upon some methods of checking them. There are so many factors involved, however, that we cannot be certain that our past activities are effective or that the devices are accurate.

Thousands of dollars go into or are taken out of a farmer's pocket because of a few points of moisture in grain. I believe that we have never developed something that is really practical and reliable in this area. By reliable, I mean reliable enough so that I can say to the farmers in my State, "There's an accurate moisture meter and it's going to tell you what the moisture is in your grain." If I can say this, we have at least solved one of the measurement problems inherent in the marketing of this commodity. I am very grateful to Dr. Carroll Brickenkamp and to Mr. Frank Jones, who have worked to develop new procedures which appear to be improvements over our present ones. I am so pleased and so impressed by what I have seen that we in Maryland are spending a considerable sum of money to buy equipment which will enable us to utilize these new procedures. We wish to become involved and to help improve this part of the measurement system. My concern in this matter is great because most of Maryland's corn, for example, is used within the State and the

moisture measurement will affect both the purchaser and the seller, both of whom pay taxes which, in part, support the weights and measures effort.

Currently, the USDA is presenting new grain standards. They (USDA) say that moisture will not be considered as one of the factors, but they indicate that it will be listed on the inspection or grading sheet. It has been my experience, however, that any time you put something on an inspection/grading sheet, it is going to become a factor in determining price. Whether the USDA considers it a factor or not, it still is a very important issue. Unfortunately, we still have a long way to go in this area and I hope that Dr. Ambler will lend his support to this very important effort. Just think what a successful accomplishment along these lines will do; not just in the State of Maryland, but in agriculture and agribusiness of every State.

I understand that there are many other States that are encouraged by this effort and they are ready to support it with time and money. We need more work in this area, because the amount of moisture in grain affects our foreign market. The amount of moisture, or the condition of grain, when it leaves this country will affect its condition when it arrives in the purchasing country. I mention this in an effort to point out to you that here is one particular item that is of great interest to me and to many people. When we talk about moisture, we're talking about many dollars to the grain farmers in Maryland, and you can imagine how many more dollars we are discussing when it involves those people in Iowa, Illinois and Ohio. An accurate test of moisture meters is highly essential. We've scratched the surface and it appears we are making improvements; let's not stop at this point. I urge all appropriate persons at the National Bureau of Standards to keep striving in this study and let's improve it to such an extent that I can say to Maryland farmers, "We have an accurate test for moisture meters. You have greater assurance that the moisture determinations for your grain are correct."

There are many more measurement problems that lie ahead and they must be solved. I hope that all of you, along with Maryland Weights and Measures personnel, will continue in bringing these items to the National Conference on Weights and Measures and the National Bureau of Standards. We are, indeed, fortunate to have NBS available to us. You can imagine what it would cost and what would happen if each State tried to duplicate that which the Bureau is now doing. Not only would we have unnecessary duplication, but we may very well have conflicting answers bordering on chaos.

Standardization, in general, is a very desirable goal. I don't know any other unit in Maryland's Department of Agriculture that possesses the national uniformity of our Weights and Meas-

ures Section. When we perform our inspections and tests, Maryland people and businesses receive the same type of treatment and are governed, for the most part, by the same criteria as those citizens of California, Illinois, Texas, or wherever any of you may be from. I am, indeed, proud of our Weights and Measures Section; they're doing an excellent job. They are the people who are actually out there, asking for no reward other than the satisfaction that they're doing a good job and that they are representing the interests of all the State citizens. I have confidence that they will still do this in the future, and may the way be known to me so that I can provide the funds and the personnel to meet their needs.

Have a good Conference; it's been a real pleasure being with you.

ADDRESS

Presented by DR. BETSY ANCKER-JOHNSON, Assistant Secretary for Science and Technology, U. S. Department of Commerce



I am delighted that you asked me to join you this morning. Some of you may recall that I addressed the 59th Conference on Weights and Measures at the Shoreham Hotel. It was a pleasure to be with you then, and it's even nicer to be back.

There are three things I'd like to discuss with you this morning. The first is our *proposed* program on Voluntary Consumer Product Labeling. The second is a recently implemented companion program for laboratory accreditation. Finally, I would like to give you a short update on our progress in establishing the U.S. Metric Board, the next step in the U. S. metrication process.

It is well known, at least to me, that some years ago various members of this group heard a lot of complaints from consumers regarding the way that merchandise was packaged and labeled. Further, I am told that many of you forwarded these complaints to your respective State and Federal legislators, that you testified in Congress regarding such practices and were, in this way, highly instrumental in securing enactment of our Fair Packaging and Labeling Act.

A similar kind of activity seems to be going on today in which you and other interested groups have brought certain consumer problems to our attention.

In response, we propose to establish a National Voluntary Consumer Product Labeling Program. If, in fact, that program comes to fruition, it will be an accomplishment for which you also deserve a considerable amount of credit.

For example, you have told us about the need for expanding the use of *Open Dating* so that consumers will have better estimates of how long a product might be expected to last *after* they get it home or indeed to know that its potency is not exhausted *even before* they make the purchase.

You have told us about the confusion in the marketplace regarding the advertised capacity of many home appliances such as washing machines, clothes dryers, dishwashers, refrigerators, freezers, etc. If we look, for example, at two different 13.5 cu ft refrigerators, we may find that they hold very different amounts of food. The problem, of course, is that there is no uniformly accepted method of measuring their volume. How do you discount the butter compartment or the ice cube trays or the egg holders? Which holds more food, a 13.5 cu ft model or the 20,000 cu in one? Naturally, I expect this latter sort of confusion to vanish when we're using the nice, sensible Metric Units.

Beyond the uncertainty in measuring capacity are the multifaceted questions of performance. For example, what is the available temperature range? What is the temperature uniformity? How much does this model cost to operate compared to some other manufacturers unit? What is the expected mean time to the first component-failure? How difficult or expensive is the unit to service?

You will recognize that we already have a start on some of these problems (namely the ones dealing with energy consumption), but we don't have enough information to calculate the life cycle cost of *my refrigerator*. As a result, too many purchasing decisions are made, both by large volume purchasers like governments as well as by individual consumers, on the basis of initial cost only.

Home insulation is an area where you have indicated a need for more information.

Is it enough to know that I have 6 inches of fiberglass in my ceiling or 4 inches of polyurethane foam? Am I in a better energy conservation posture if I know that my insulation has an R-Value of 19? The latter assumes that I know the R-Value means resistance to heat conductivity and so am able to make by own value comparisons between competing products based on this information.

These are just a few of the cases where product labels carrying performance specifications would seem highly desirable, and we are very happy that you've called them to our attention. This is

especially true not only because of the specific problems you've mentioned but also because these requests all seem to have one thing in common. They reveal a trend in which consumers are seeking data not only on the *quantity* of material that is offered but also on the *quality* of the product in those cases where a meaningful measurement can be made. People are looking for measurements of performance that might never have existed before, just as they are expecting standardized measures of capacity.

These are the kinds of questions that our proposed labeling program would address. Now, how would the program work? Where do we stand today? And what can you do?

Let me begin with a little history. On May 25, the Department of Commerce announced—through a notice in the Federal Register and a press release—its intention to develop the Voluntary Consumer Product Labeling Program.

The program is to be developed in cooperation with consumers, manufacturers, producers, distributors, retailers and other interested groups.

Its purpose is to facilitate consumer purchasing decisions by making available, at the point of sale, comparative information on selected product performance characteristics like the ones I mentioned a few moments ago. The program is also intended to provide *manufacturers* an opportunity to convey to the public a reliable statement about the particular advantages of their products.

Important note: The program will be implemented only if we see a clear indication of need and support.

To find out if the labeling program would fill an important need we have conducted three public hearings and invited written comment on the program. Since a number of groups desired additional time to prepare a formal statement, I have extended the deadline for written comments until August 2.

I urge you and the groups you represent to take advantage of this opportunity to take a stand, for or against.

We are most anxious to receive comments about:

- (1) the need for the program,
- (2) the way it should be conducted,
- (3) the kinds of products that should be included and what pertinent characteristics should be tested,
- (4) the way labels should be designed or located, or
- (5) any other aspects of the program that you feel need attention.

For a full description of the Voluntary Consumer Product

Labeling Program and the procedures we are currently planning to use, I refer you to the Federal Register of May 25, 1976. Some copies are available in the back of the auditorium. Briefly, the program would work this way:

- 1st Upon the request of an individual or an organization, the Secretary may determine that *a need exists* for particular information on a specific product.
- 2nd He publishes a notice of this preliminary finding in the Federal Register and allows 30 days for written comment. A hearing may be conducted if requested.
- 3rd Comments would be reviewed and a final statement or notice of withdrawal published.
- 4th Specifications are developed for performance labeling of the designated product.
- 5th Another notice is published in the Federal Register. This one gives all details developed for the labeling specifications and invites further comments. (More hearings if needed.)
- 6th The specification may then be published in final form, developed further or withdrawn.
- 7th If the first option is chosen, i.e. specification published in final form, then a schedule is developed to establish fees for use of the Department of Commerce Label and Mark on each product. These will be large enough to make operation of the program, in due course, as nearly self-liquidating as possible.
- 8th Manufacturers desiring to participate notify the Secretary and then proceed to make the measurements needed to collect data so they may display the label on their products.

Finally, though it is not in the procedures, advertisers and consumers will have to use the labels.

Now, where do we go from here? Our next step is to analyze all of the oral testimony and comments that we have received. At the conclusion of this analysis, the Secretary may either publish the

final procedures, publish additional proposed procedures for public comment, or withdraw the proposed program.

The second topic I want to discuss is our recently established National Voluntary Laboratory Accreditation Program.

I believe this program will be of interest to you because it represents a unique government and private sector venture to provide, a much needed service. The goal of this program is to provide, in cooperation with the private sector, a national voluntary system to examine, upon request, the technical competence of testing laboratories that serve product *evaluation and certification needs*.

Of course, both the private sector and governments can establish effective product *test method standards* and other elements of certification systems to determine if a product conforms to a designated standard. However, essential to such systems is that laboratories participating in certification programs be accredited by a *nationally* recognized *institutional body* competent to perform the technical evaluation of laboratories. Our program, by utilizing the services of the National Bureau of Standards, provides this essential institutional body.

Here's how this program functions: Anyone may request the Secretary of Commerce to find that there is need to accredit testing laboratories—to say that the following laboratories are competent to test a specific product. The idea is to ascertain whether such a product meets the requirements of a particular standard.

If the Secretary finds that there is a need, he establishes a National Laboratory Accreditation Criteria Committee composed of members of government and the private sector. This Committee will recommend to the Secretary the general and specific criteria that a testing laboratory must meet in order to test that a specific product conforms to a particular standard.

We view this program as providing a much needed service both domestically and internationally.

Domestically it will have these advantages:

- a. A group of manufacturers could establish a certification system requiring that the testing of products to meet a standard be done by a nationally accredited laboratory. This would assure that the laboratory doing the testing was *competent*.
- b. The State of Pennsylvania, for example, in order to determine that a certain product meets a particular standard could require that it be tested by a nationally accredited laboratory. This would enable a manufacturer in New York to have

his product tested by a local Nationally Accredited Laboratory with the knowledge that Pennsylvania would accept these test results.

Internationally the program will assist U.S. manufacturers to conform with regional certification systems. For example, a group of European countries might establish a regional system which would require that a manufacturer have his product tested by a nationally accredited laboratory before it can be sold. If there were no institution in the U.S. to nationally accredit laboratories then, our U.S. manufacturer would have to have his product tested abroad at great expense and delay.

I have already acknowledged the assistance of weights and measures professionals in formulating our program of Consumer Product Labeling, but let me assure you our Laboratory Accreditation Program has also borrowed heavily upon your experience. For example, you are all aware of the need to check back and continually verify that a scale is functioning properly. Well, we also plan to check back and verify that the laboratory continues to meet the criteria established for its accreditation.

Our present status is this. We have received two specific requests for accreditation. One is for testing thermal insulation materials like the ones I mentioned earlier. The second is for inspection testing of electrical power distribution systems in buildings—a subject that is rather closely related to safety aspects of the electrical codes. We are discussing some possible requests for testing the efficiency of solar collectors and for calibration of electronic devices used in the communication industry.

Now, let's switch gears to our third subject and take a look at the metric issue. First, I want to congratulate the National Conference on Weights and Measures for the leadership which you have consistently exercised in preparing for change over to the metric system. You have developed a considerable amount of momentum. I am, of course, referring here to your plans for updating Handbook 44, "Specifications, Tolerances and Other Technical Requirements for Commercial Weighing and Measuring Devices," and for updating such model regulations as the "Method of Sale of Commodities." I believe you have already made significant progress in establishing guidelines for metric labeling. These are important activities and I applaud you for continuing such good work.

Finally, let me give you a short update on progress in establishing the U.S. Metric Board. You recall on December 23, 1975, President Ford signed into Law the "Metric Conversion Act of 1975." This Act provides for the President to appoint a 17 member Board to coordinate the voluntary conversion to the metric sys-

tem. At least 12 members of the Board will be drawn from lists of names recommended by organizations or individuals representing 10 special interest groups. These include weights and measures, commerce, labor, engineering, etc. The President will also appoint a Chairman and four at-large members to represent consumers and other interests.

As you probably know, on April 5, 1976, Secretary Richardson announced that President Ford had assigned responsibility to the Department of Commerce for compiling the lists of names nominated in the 10 categories; and he called for representatives of industry, labor, science, education and several trade sectors to submit nominations to me before May 31, 1976. In addition to this announcement, letters were sent to the six organizations specifically named under the Act, including the National Conference on Weights and Measures, (and to 66 organizations representative of the 10 categories) asking them to submit nominations. In response, the Department received over 250 nominations for the 10 different categories. The number of nominations runs from just a handful in manufacturing to well over a hundred in education. At least 7 were received in the weights and measures category.

The lists of nominees, together with the name of the person or organization who made the nomination, have been forwarded to Mr. Douglas P. Bennett, the Director of the Presidential Personnel Office. We also sent along resumes and letters of nomination or endorsement. The President's choice will be a difficult one because so many well qualified individuals have been nominated.

So there's the latest on three issues of considerable priority in my Secretariat, which I know are of importance to you.

NBS FILM—"STANDARDS FOR EXCELLENCE"

For the conclusion of the Wednesday morning session, the delegates were shown the film, "Standards for Excellence." This NBS film was produced as part of the Bureau's overall information effort in connection with its 75th Anniversary. It is designed to educate both young and old alike on the impact of standards and measurements in our daily lives. The film begins at Thomas Jefferson's home Monticello where he developed his own system of weights and measures during colonial times. It carries the theme of measurement into our complex modern civilization of today and then focuses on the contributions NBS has made to furthering the science of measurement and the development of precise standards. The film is narrated by Actor John Astin, son of one of the Bureau's former directors, Dr. Allen V. Astin. "Standards for Excellence" is available for free loan from Association Films, 866 Third Avenue, New York, New York 10022; it is available for purchase from the National Audio Visual Center, Attention: Order Section (NAC), General Services Administration, Washington, D.C. 20409; price: \$131.75.

REPORTS OF STANDING COMMITTEES

REPORT OF THE COMMITTEE ON EDUCATION, ADMINISTRATION, AND CONSUMER AFFAIRS

Presented by R. T. WILLIAMS, *Chairman*; Director of Programs,
Department of Agriculture, State of Texas

(Thursday, July 15, 1976)



The Committee on Education, Administration, and Consumer Affairs submits its final report to the 61st National Conference on Weights and Measures. The report consists of the tentative report as offered in the Conference Announcement, and as amended by the final report. The report represents recommendations of the committee that have been formed on the basis of written and oral comments received during the year and oral presentations made during the open meeting of the committee.

National Weights and Measures Week

Mr. William Korth of Ventura County, California, the 1976 national chairman for the Week, is commended by the committee for his leadership in securing materials and soliciting government and industry cooperation for the promotion of this annual observance.

The Scale Manufacturers Association is also tendered recognition for making available window stickers and an excellent kit of promotional material including press releases, editorials, television spot announcements, and other timely information for use by the jurisdictions. The promotional kit is especially timely this year in that it takes into account the signing by the President of the Metric Conversion Act on December 23, 1975, and much metric material is included for the weights and measures officials.

Mr. Ellis Fitzgerald of Fairbanks Weighing Division, Colt Industries, supplied 5,000 reduced size third man posters for appropriate distribution. Mr. Korth sent letters, information, and posters to the Grocer's Journal, National Petroleum News, American Metric Journal, Metric News, and Weighing and Measurement Magazine asking for their support in publicizing the Week. Similar information was also sent to Columbia Broadcasting System, National Broadcasting Company, and Mutual Broadcasting System re-

questing that they and their affiliate stations appropriately recognize the Week in their public service announcements.

Since this is our bicentennial year and since the Metric Conversion Act has recently been enacted, our national chairman also contacted President Gerald R. Ford requesting that he join in observing the Week by asking the American public to recognize the excellent services provided by weights and measures officials across the nation.

The weights and measures directors of all the States, the District of Columbia, Puerto Rico, and the Virgin Islands were again contacted and asked to name a coordinator for each of their jurisdictions. Replies were received from 35 States, Puerto Rico, the Virgin Islands, and the City of Birmingham, Alabama. While this is a slight improvement over the last year, the committee is very disappointed in the fact that we could not achieve a 100 percent response during our bicentennial year.

The process of choosing a National Weights and Measures Week chairman was discussed at length during the interim meeting. As a result, the committee now recommends the naming of a National Weights and Measures Week chairman during the interim committee meeting instead of making the selection at the National Conference in mid-summer as has been done in the past. This would give the new chairman a full year to work on the Week's promotional efforts rather than about 7 months as has been the practice. Accordingly, Mr. William Korth of Ventura County, California, was selected to serve as national chairman for the 1977 observance.

A resolution will be introduced this fall by Congressman Robert Lagomarsino requesting a presidential proclamation calling on the people of the United States to observe the period of March 1-7, 1977 as National Weights and Measures Week with appropriate ceremonies and activities. Since this resolution will require a majority endorsement by members of the House, delegates are urged to contact their Representatives at the time of notification of the bill's introduction.

(The foregoing item was adopted by majority vote.)

Weights and Measures Promotional Activities

1. Weights and Measures Commemorative Medallion

As was reported to the 60th Conference in San Diego, the medallion project has been a tremendous success, and the last order of medallions was received in June 1975. At this time, the total and final issue of the silver medallion, selling for \$15 each,

has been completely sold out. A total of 450 bronze medallions were struck and made available for purchase at \$7.50 each. Approximately fifty of the bronze medallions are still available for sale.

Conference members are advised to place orders immediately for the few remaining bronze medallions since these limited editions are already increasing in value. Orders may be directed to R. N. Smith, Office of Weights and Measures, National Bureau of Standards, Washington, D. C. 20234, with checks made payable to the National Conference on Weights and Measures.

Funds realized from this project will be used by the committee for future educational efforts having nationwide impact.

2. National Conference Self-Adhesive Decals

An abundant supply of these attractive decals is now on hand to fill anticipated orders with a minimum order of 30 decals priced at \$5. Other price increments are 45 decals-\$7.50, 60 decals-\$10, 75 decals-\$12.50, 100 decals-\$15.

Use of the decals is suggested on personal luggage, brief cases, equipment cases, automobile bumpers, or similar areas as an effective means for public identification with the vital area of weights and measures control.

Orders may be directed to R. N. Smith, Office of Weights and Measures, National Bureau of Standards, with checks made payable to the National Conference on Weights and Measures.

3. Household Weights and Measures Card

The Household Weights and Measures card published and distributed by the Office of Weights and Measures some 15 years ago has been updated and revised by the National Bureau of Standards Metric Information Office and now includes much useful household metric information.

The 8½" × 11" card is produced in cooperation with the National Conference on Weights and Measures, and space has been provided at the top of the card for the imprinting of State or local jurisdiction name and address for distribution to local consumers. These cards can be supplied on a no-charge basis by the Office of Weights and Measures, National Bureau of Standards. It is requested that individual orders be held to a reasonable minimum number and include only the number that can be effectively distributed in the jurisdiction.

4. Smithsonian Institution Exhibit of Weights and Measures

The committee is pleased to report that the weights and measures profession is recognized as part of a permanent exhibit in the

Smithsonian Institution for the Bicentennial titled, "We The People." A separate case titled, "Standardizing Measurement" is included in the "Government For The People" part of the total exhibit. It contains several historical standards.

Several other exhibits contain historical weighing and measuring devices supplied by industry that will be of interest to weights and measures officials.

Conference delegates are urged to visit the exhibit located on the Mall in Washington, D. C., and to give it appropriate publicity in their jurisdictions.

(The foregoing item was adopted by majority vote.)

Metric Education Seminars

The committee is extremely pleased to report that the Office of Weights and Measures has completed arrangements for transfer of funds from the U.S. Office of Education to the National Bureau of Standards to enable the Conference to conduct phase one of a metric training program for weights and measures officials. These funds are being made available under Public Law 93-380.

As announced in Special Tech Memo No. 29, a subcontract to Mr. John Landvater of Landvater Associates was issued for the conduct of a series of six seminars throughout the United States beginning in March and ending in June 1976. The purpose of these seminars will be twofold: (1) to provide the jurisdiction directors with current information to assist them in their important planning role for metric conversion and (2) to train a core group of instructors who will then be able to run training programs in their own jurisdictions.

The committee feels that it is important for everyone to understand that the six planned seminars represent phase one of a hoped for multi-phase program. Additional money in the form of future grants is recommended at an appropriate future date.

The original six area seminars on metric training have been completed and a full report was presented during the committee's open hearing by John Landvater and Margo Perkins, including recommendations for future Conference action. The committee concurs with the recommendations and urges the Conference to take necessary action officially endorsing this "model program" as its basic uniform metric training program.

In partial response to the recommended long range planning, two additional seminars have been scheduled during September and November 1976 at the National Bureau of Standards. Contact Jeffrey Odom, Metric Information Office, National Bureau of Standards, for complete details.

(The foregoing item was adopted by majority vote.)

Metric Slide and Tape Program

An excellent slide and tape program on the metric system has been developed and produced by the Ventura County Weights and Measures Department and Moorpark College in California. The title of the program is "Whatta Family" and is a takeoff on the "All in the Family" television series.

It is geared to senior high school students and is not meant to explain the metric system but to alleviate the fear a great many people have of it being difficult. The program consists of 64 color slides and an accompanying cassette tape. Total running time is 15 minutes and 7 seconds.

Committee member Bill Korth has made arrangements to provide copies of the program for sale under the auspices of the Committee on Education, Administration, and Consumer Affairs. The selling price for the total package is \$33. The committee highly endorses this project and urges weights and measures officials to take advantage of this opportunity to add to their metric informational libraries.

Orders and checks should be directed to William Korth, Director of Weights and Measures, Ventura County, 608 El Rio Drive, Oxnard, California 93030.

(The foregoing item was adopted by majority vote.)

Expansion of State Weights and Measures Directory

The committee recommends the expansion by the Office of Weights and Measures of the present State directory to include county and city jurisdictions actively conducting weights and measures work in the United States. The directory should list the name, business address, and phone number of the jurisdiction director.

The committee feels that this directory would be invaluable in expediting communications between jurisdictions providing it is updated on a two-year basis. Jurisdiction directors are urged to respond promptly to any OWM questionnaire which will be necessary to keep the information current. No such publication is possible without 100 percent cooperation from all jurisdictions.

The new directory has been completed and distributed to weights and measures offices. Additional copies are available from the Office of Weights and Measures, National Bureau of Standards.

(The foregoing item was adopted by majority vote.)

Development of an Educational and Promotional Film to Include Metric Activity

The committee feels a definite need for the production of a color film presentation similar to the now outdated film "Assignment Weights and Measures." The proposal is for a film not to exceed 20 minutes which can be used by all jurisdictions for training activity, public presentation, entertainment, and on television as a public service presentation.

The film would be primarily educational and promotional of weights and measures work but would also incorporate various aspects of the metric system and its consumer impact. It is not intended that the film should explain all aspects of the metric system but rather treat it as an eventuality for which we must all prepare.

The main focus would be on the scope and importance of weights and measures activity through all channels of trade. The incorporation of metric information will perhaps give the film good impetus for wide use by the educational media as well as increase its demand among consumer groups.

The committee proposes to use funds realized by the medallion sales and other recent promotional activities.

(The foregoing item was adopted by majority vote.)

Availability of Metric Field Standards

The Office of Weights and Measures is requested to compile and keep current a list of manufacturers of metric field standards which jurisdictions may use when searching for sources for new metric equipment. This list would not represent an endorsement of any of the companies but would merely serve as a source document for the use of the jurisdictions.

It is also requested that, if possible, guidelines be included as to recommended denominations of metric weighing and measuring test equipment.

(The foregoing item was adopted by majority vote.)

A Question of Ethics

The California Association of Weights and Measures Officials was recently advised of a possible conflict of interest occurring when regulatory personnel join and actively participate in the affairs of industrial associations whose membership is regulated by the weights and measures officials.

This California incident is relayed to the Conference membership as an item of information only, and the committee at this time does not take any position as to its nationwide validity. However, each weights and measures official may want to review his own situation according to the local climate in which he operates and possibly consult with appropriate officials at home in order to clarify his position in this matter.

(The foregoing item was adopted by majority vote.)

Future Surveys of Weights and Measures Jurisdictions

The committee goes on record and pledges support and cooperation for future information-gathering surveys. It is recommended, however, that the value of, and necessity for, each such survey be closely scrutinized and the questionnaire itself be held to an absolute minimum in length. One page is recommended, two pages are acceptable, three pages or more border on the burdensome and can be a serious infringement on the time of the respondent.

A short questionnaire is forthcoming from the Committee on Education, Administration, and Consumer Affairs at the request of the National Measurement Policy and Coordination Committee. The survey will seek data in the following areas:

1. procedure for adopting changes to Handbook 44 and the model law and regulations,
2. device inspection fee or licensing system,
3. type of registration of servicemen.

The committee again urges the support of each jurisdiction in promptly and accurately responding to this and future surveys.

(The foregoing item was adopted by majority vote.)

Funding for Metric Conversion Activities

In view of the passage of the Metric Conversion Act of 1975, it is imperative that the National Bureau of Standards, through its Office of Weights and Measures, develop the capabilities for assuming a leading role in assisting all weights and measures jurisdictions in their metric conversion activities. This responsibility is set out in the metric bill.

The committee calls attention to this need and strongly recommends that the executive secretary convey the committee's con-

cerns to the appropriate NBS officials regarding the need for adequate funding to fulfill this obligation.

(The foregoing item was adopted by majority vote.)

Request for Budget Data

To implement a field request for budget justification data and format, weights and measures jurisdictions are solicited to forward to the Office of Weights and Measures any cost benefit analyses or other budget justification data on inspection activities for future distribution and use by other interested jurisdictions.

(The foregoing item was adopted by majority vote.)

R. T. WILLIAMS, *Chairman*, Texas

W. B. HARPER, Birmingham,
Alabama

W. H. KORTH, Ventura County,
California

A. J. LADD, Akron, Ohio

S. VALTRI, Philadelphia,
Pennsylvania

R. N. SMITH, *Staff Assistant*, NBS

H. F. WOLLIN, *Exec. Secy.*, NCWM

Committee on Education,
Administration, and Consumer
Affairs

(On motion of the committee chairman, the report of the Committee on Education, Administration, and Consumer Affairs was adopted in its entirety by the Conference by majority vote. The Conference also authorized the executive secretary to make any appropriate editorial changes in the language adopted by the Conference.)

REPORT OF THE COMMITTEE ON SPECIFICATIONS AND TOLERANCES

Presented by KENDRICK J. SIMILA, *Chairman*; Administrator, Weights and Measures Division, Department of Agriculture, State of Oregon

(Thursday, July 15, 1976)



The Committee on Specifications and Tolerances submits its final report to the 61st National Conference on Weights and Measures. The report consists of the tentative report as offered in the Conference Announcement and as amended by its final report.

The report represents recommendations of the committee that have been formed on the basis of written and oral comments received during the year and oral presentations made during the open meeting of the committee. All recommended amendments are to appropriate provisions of the codes of the National Bureau of Standards Handbook 44, Fourth Edition, "Specifications, Tolerances, and Other Technical Requirements for Commercial Weighing and Measuring Devices."

NOTE: In order to provide a clear understanding of the recommended amendments, all paragraphs to be amended are printed in their present form; that which is to be deleted is shown lined out; and that which is to be added is underlined.

1. *Metric Conversion—Unmet NCWM Needs Made More Urgent by Passage of the "Metric Conversion Act of 1975" (Public Law 94-168).*—The committee discussed at length the increasing use of the metric system in the United States, and particularly the future of weighing and measuring device designs in this country as a consequence of the enactment of Public Law 94-168. The metric era in commercial devices is not coming, but rather in a sense is already here. The weighing and measuring systems that will be in use in this country throughout the decade of the 1980's and beyond are already being designed and engineered.

The 60th Conference last year in adopting the committee's report recognized that publications such as NBS Handbook 44 and the 105 series could not adequately provide for the total transition to the metric system. The 60th Conference then accepted the committee's recommendation that existing publications of these types should remain in the U.S. customary system and that to deal

with metric conversion realistically a whole new set of "all metric" device codes or handbooks be developed.

The committee feels that while an urgent need exists for the Conference to provide guidance and direction (in the form of "all metric" specifications, tolerances and other technical requirements for devices) to manufacturers who will be supplying new wholly metric equipment, the Conference resources to provide these new engineering standards in a timely manner are presently inadequate to accomplish the task. The number and scope of the agenda items relating to the current Handbook 44 codes at the annual interim and July Conference meetings preclude meaningful development by the committee itself of new "all metric" equivalents of Handbook 44 codes. The committee is responding, however, to the near term needs for Handbook 44 codes to recognize the capability of certain devices designed in the customary system to possess dual customary/metric indications.

In the view of the committee, development of the "all metric" weighing and measuring device codes cannot be delayed until after the U.S. Metric Board has begun its work. The appropriate metric device design and performance criteria must be known *well in advance* of any voluntary metric conversion timetables worked out among the various U.S. industrial, commercial and retail trade segments. The absence of appropriately designed metric weighing and measuring devices at the time they are needed will not only frustrate conversion timetables but be a burden on the whole of commerce as well.

The committee had discussed the possibility of certain International Organization of Legal Metrology (OIML) International Recommendations serving as a starting point for drafting proposed "all metric" device codes for adoption by the Conference. U.S. participation as a treaty member of OIML now provides the means for U.S. points of view to influence OIML International Recommendations under development. At the present time, there are 34 OIML International Recommendations. Additionally, there are 11 draft recommendations to be voted on at the Fifth International Conference to be held in October 1976. There are also seven project recommendations to be presented to the International Committee of Legal Metrology (CIML) the day preceding the International Conference. If these are approved by the International Committee, they too will be voted on by the International Conference. Therefore, at the conclusion of the Fifth International Conference, there could be 52 International Recommendations.

Further, OIML has published its first International Document No. 1 entitled "Legal Metrology Law." Of these 53 documents, 33 impact on legal metrology in the United States and, consequently, on this organization, the National Conference on Weights and

Measures. It will take considerable time and resources to research each of these 33 documents to make certain they fit the needs of the United States.

The committee has responded to what it considers the primary problems by making recommendations for Handbook 44 amendments directed toward certain metric equipment.

To resolve the present impasse in the development and adoption of "all metric" device codes by the Conference, the committee therefore strongly recommends the following stepwise approach:

STEP 1—The Conference recognize as its top three priorities for development into "all metric" device codes or their equivalent, the provisions and requirements for devices as presently covered by the following sections of Handbook 44:

- a. General Code
- b. Code for Scales
- c. Code for Liquid Measuring Devices

STEP 2—The Conference establish the following timetable of "need dates" for development of the top three priority "all metric" weighing and measuring device codes:

- a. January 1978—Outlines for at least the priority "all metric" codes (including their suggested scope, major subject breakdowns, formats, and explanation of any new concepts to be introduced, etc.) to be in draft form for review, markup and recommended action by the S & T Committee at the interim meeting of the 63rd NCWM.
- b. July 1978—Action by the 63rd NCWM on the "all metric" code outlines recommended by the S & T Committee in its tentative report to the Conference.
- c. January 1979—Complete working drafts of the priority "all metric" codes per the adopted outline available for S & T Committee review (by 11/1/78 with markup and recommended action at the interim meetings.
- d. July 1979—Action by the 64th NCWM on the S & T Committee's report recommendations for adopting "all metric" device codes.

STEP 3—The Conference request in writing under signature of its Chairman the assistance of the Secretary of Commerce under Section 6(7)(C)(ii) of Public Law 94-168 in providing through the National Bureau of Standards additional full-time professional (engineering or technical) staff members in the Bureau's Office of Weights and Measures to accomplish STEP 2, above. In requesting the Secretary's help in this matter, he should be advised that:

- a. the matter is of critical importance to Commerce for the reasons stated in paragraphs 3 and 4 of this item,
- b. this task is beyond the capability of State and local weights and measures jurisdictions,
- c. NBS has the authority to provide such assistance, but apparently insufficient resources,
- d. additional staff is necessary because of the need to research extensively both existing and in-process international metric (OIML) device standards, to determine and evaluate the technical and philosophical differences between the U.S. and international engineering standards for commercial weighing and measuring (legal metrology) devices, and to synthesize and draft proposed "all metric" standards based on the information developed.

(The foregoing item was adopted by majority vote.)

2. *Related NBS Technical Services—Prototype Examination Program and Publication of Examination Guidelines.*—The work of the committee in proposing device specifications, tolerances, and other technical requirements for adoption by the Conference has been supplemented over the years by two related programs of NBS' Office of Weights and Measures. Both the prototype examination of devices and the publication of examination guidelines (manuals and EPO's) by OWM have materially contributed to achieving uniformity of interpretation and application of NBS Handbook 44 requirements among the various State and local jurisdictions. In addition, it is recognized that the prototype activity has been of substantial benefit to manufacturers wishing to introduce new lines or models of equipment.

The committee believes strongly in the value of these two related programs to the Conference members, jurisdictions and commerce generally. With the support of the Conference, it believes these programs can and should be strengthened. With this

purpose in mind, the committee recommends the Conference adopt the policy statements directed to the National Measurement Policy and Coordination Committee regarding these outputs as guidelines to the National Bureau of Standards in its administration of these programs.

(The foregoing item was adopted by majority vote.)

GENERAL CODE

1. *G-A.4. Metric Equipment.*—A recommendation was received from the Southern Weights and Measures Association (SWMA) to amend this paragraph so that all of the code amendments are applicable to metric equipment, not just specifically equivalent tolerances. The problem indicated by SWMA was directed toward certain scales equipped with dual indications which indicate in either metric or U.S. Customary units. The particular design referenced were those devices that displayed the same digit as a minimum increment in both systems. For example, if the least significant digit displayed in U.S. Customary units was 1, as on a scale with a capacity and minimum increment of 1,000 lb x 1 lb, when switched to metric units, would provide indications with a capacity and minimum increment as 454 kg x 1 kg. Thus, the scale, when indicating in metric units, has a minimum increment equal to a quantity approximately twice as large. It was the opinion of SWMA that these devices should be designed to display minimum increments in comparable values; that is, if the U.S. Customary minimum increment is 1 lb, the metric minimum increment should be 0.5 kg.

As referenced in the committee's report of last year, it is the committee's view that every requirement of Handbook 44 cannot apply specifically to metric equipment, that soft conversions are not appropriate, and that since the United States is an active participant in the International Organization of Legal Metrology and is beginning to consider the adoption of the mutually developed International Recommendations, it is necessary to develop a metric Handbook 44 which would be applicable to metric equipment only. With respect to the appropriateness of the design and use of metric equipment, it is the committee's view that until the publication of a metric H-44, the second sentence of this paragraph can be applied. This sentence reads as follows:

“... The specific provisions of these requirements and the principles upon which the requirements are based shall be applied to metric equipment insofar as appropriate and practicable ...”.

It is the committee's view that it is necessary to provide specific design criteria for equipment designed to indicate in both systems. The committee recommends amendment to H-44 as follows:

G-S.5.3.1. Dual Indications.—On equipment designed to indicate or record in either or both U.S. Customary or metric units, comparable values shall be indicated or recorded in each mode of operation (i.e., 10 lb—5 kg; 0.01 lb—5 g; 0.01 gal—50 cm³; 1/8 yd—0.1 m). The values indicated or recorded shall be identified with the appropriate unit symbol, abbreviation or word. (Nonretroactive and enforceable as of January 1, 1978)

Amend the Scale Code by adding the following new paragraph:

T.2.10. Minimum Tolerance Values, For Scales Indicating In Metric Units.—The minimum tolerance shall be one half the value of the minimum division or 0.05% of the nominal capacity for nonautomatic-indicating scales* or reading face capacity for automatic-indicating scales** whichever is less.

*Including scales equipped with over-and-under indicators.
**Excluding scales equipped with over-and-under indicators.
(The reading face capacity of a multi-revolution scale shall be the total capacity of the scale.)

It is the view of the committee that this paragraph includes all of the information contained in Scale Code Table 3; and the committee will recommend to the 62nd Conference that this new paragraph replace Table 3.

These amendments will provide for the following:

a. For dual indicating and recording systems, it will be necessary to indicate or print, adjacent to the quantity values, the appropriate word, symbol, or abbreviation to describe the value of the units. On a digital instrument, for example, it will be necessary to display, adjacent to the number values, the abbreviation "lb" or the word "pound" when in the U.S. Customary mode; and when indicating metric values, the symbol "kg" or word "kilogram."

b. It will be necessary that the recording element print the value of the units in the same manner as indicated.

c. Minimum tolerance values in metric units for devices indicating in metric units.

(The foregoing item was adopted by majority vote.)

2. *G-S.1. Identification.*—A comment was received from the SWMA that the identification plate on some devices, although on an exterior surface, was not visible to the inspecting official after the installation of the device and that this paragraph should be amended to eliminate that possibility. The committee recommends amending this paragraph as follows:

G-S.1. Identification.—All equipment except weights shall be clearly and permanently marked on a surface visible after installation* for purposes of identification with the name, initials, or trademark of the manufacturer and with the manufacturer's designation that positively identifies the pattern or the design of the device. *All weighing and measuring devices, except those with no moving or electronic component parts (such as weights, liquid measures, and milk bottles), shall be clearly and permanently marked on a surface visible after installation* with a nonrepetitive serial number (nonretroactive as of 1968). (*non-retroactive as of January 1, 1977)*

(The foregoing item was adopted by majority vote.)

3. *G-UR.2.2. Installation of Indicating and Recording Elements.*—A recommendation was received to amend this requirement so that the oral or visual direct communication required to be provided in this paragraph be a representative of the owner or operator of the equipment used in determining the quantity. It was the committee's view that the philosophy expressed in this paragraph was to make certain, in the case of a scale, a weigher located at the indicating element has complete information concerning the application of the load on the load receiving element. For example, are all axles scale borne? Is the driver on or off? It was also the view of the committee that this paragraph applies to equipment that was not used for direct sales since paragraph G-UR.3.2. Position of Equipment would then apply. Therefore, it is the view of the committee that in direct sale applications paragraph G-UR.3.2. applies so that the customer, whether buying or selling, has an opportunity to view the indication and the weighing or measuring operation. Further, in nondirect sales applications, if a weigher located at an indicating element remote from the load receiving element was concerned as to the integrity of the individual providing the communication (for example, a truck driver providing information as to driver on or off, or that the entire truck or certain axles are scale borne), he could avail himself of other technical means (for example, closed circuit television), and no further amendment to the code is necessary.

(The foregoing item was adopted by majority vote.)

4. *Equipment Not Intended for Trade.*—A recommendation was received to amend the code by adding a paragraph that would require all weighing and measuring equipment which is designed by the manufacturer *not* to meet the requirements of Handbook 44 to be marked “Not Legal For Trade.” It was brought to the attention of the committee that there are instances where devices are offered and advertised for sale for noncommercial applications and are represented as meeting the requirements of Handbook 44. Since these devices are not subject to inspection and in some instances did not meet the requirements of Handbook 44, this merchandising was considered unfair to prospective purchasers. The committee discussed at length this problem and it was their view that such an amendment would place an undue burden on manufacturers of equipment, that it would be impossible to enforce and that since Handbook 44 addresses itself to commercial equipment, it could not be amended to provide requirements for noncommercial equipment. However, the committee wishes to remind the manufacturers of weighing and measuring equipment that when the equipment is designed and offered for sale and it is not intended for commercial applications, reference to Handbook 44 or other weights and measures laws or regulations is inappropriate. It further wishes to recommend that when advertising of this nature is found, the manufacturer should be notified and requested to delete all such references.

(The foregoing item was adopted by majority vote.)

5. *General Code, Reference to Commercial Equipment.*—It is the view of the committee that since the application section of the General Code specifies the application of H-44 requirements to commercial and law enforcement equipment, it is not necessary to qualify equipment as commercial in the remaining paragraphs of the code. The committee recommends the deletion of the word “commercial” in the following paragraphs: G-S. 1., G-S. 2., G-S. 3., and G-UR. 4. 1.

(The foregoing item was adopted by majority vote.)

CODE FOR SCALES

1. *A.2. Wheel-Load Weighers and Axle-Load Scales.*—A comment was received that it could be construed that this paragraph is applicable only to equipment in use by State authorities. It is the view of the committee that the language presently in this paragraph; that is, “. . . in official use for the enforcement of . . . laws . . . by government agencies,” is applicable to equipment in use by all

levels of government including city and county; and therefore amendment to the code is not necessary.

(The foregoing item was adopted by majority vote.)

2. *Unit Prices on Electronic Computing Scales.*—Since the 60th National Conference, the S & T Committee has received numerous inquiries concerning the application of the amendment to the Scale Code which was adopted by the 60th Conference which eliminated the display of unit prices in quarter-lb and half-lb units to the customer. The committee wishes to reconfirm its position in its report to the 60th NCWM; that is, that selling, offering or exposing for sale commodities to be weighed from bulk in unit prices based on quarter-lb and half-lb units:

- a. makes value comparisons by consumers extremely difficult;
- b. is in violation of Section 9 of the Model State Weights and Measures Law; i.e., pricing in this manner tends to mislead;
- c. is inconsistent with the philosophy expressed in Section 13 of the Model State Weights and Measures Law which requires the price per pound on random packages; and
- d. is inconsistent with the intent of Congress in the passage of the Fair Packaging and Labeling Act to regulate packages as stated in Section 2, "... should facilitate value comparisons."

It is the committee's intent to eliminate the practice of pricing by quarter-pound and half-pound units and to eliminate the technology from electronic digital indicating computing scales.

As a result of a joint session with the L & R Committee at this year's interim meeting, the committee makes the following recommendations:

Add the following new paragraph:

S.1.6.4. Unit Prices.—Computing scales equipped with digital indicating or recording elements shall display, if equipped to display, and record, if equipped to record, unit prices on the basis of the price per pound and not in fractions or multiples of a pound.

Since the L & R Committee is recommending amendment to the Model State Method of Sale of Commodities Regulation to eliminate the practice of selling, offering or exposing for sale in units

other than a pound to become effective January 1, 1978, the S & T Committee recommends that this new paragraph be nonretroactive and become retroactive January 1, 1978. This means that all equipment presently in use having the capability of pricing by quarter-pound and half-pound units may continue to be used but must be modified by January 1, 1978; and all equipment sold after January 1, 1976, may not be so equipped.

Renumber existing paragraph S.1.6.4 to S.1.6.5.

Amend paragraph S.1.6.3. by deleting the last sentence which was added to the paragraph last year:

S.1.6.3. Customer's Indications.—Weight indications shall be shown on the customer's side of computing scales when these are used for direct sales to retail customers. Computing scales equipped on the operator's side with digital indications, such as the net weight, price per pound, or total price, shall be similarly equipped on the customer's side (nonretroactive as of 1971). ~~Unit price displays visible to the customer shall be in terms of the price per pound and not in fractions or multiples of a pound.~~

Considerable discussion and debate ensued, resulting in a motion to table this item until after the L & R Committee presented its final report to the Conference. The motion was seconded and passed.

After the L & R Committee presented its report, the S & T Committee reconvened and voting proceeded on this item.

(The foregoing item was defeated by majority vote.)

3. *S.1.6.4. Recorded Representations, Point of Sale Systems.*—Since the last Conference on Weights and Measures, the committee has received numerous requests for its interpretation of a particular format for presenting the information required on the customer's tape. Some of the questions asked are as follows:

Since the abbreviation "lb" normally requires two characters on a print line rather than one, and since unit prices cannot be presented for anything other than whole pound units, can the unit price appear without being identified with the abbreviation "lb." It is the committee's view that the key to any format used is expressed in paragraph G-S. 5. 1., that the recorded representations are clear, definite, accurate, and easily read. It is the committee's view that the unit price need not be associated with "lb" when presented in this manner; for example.

1.53 lb @ 1.49 2.28

However, there may be certain instances where it may be necessary to qualify the unit price with "lb." For example,

1.53lb	.76
3lb/1.49	161

The committee was also requested to consider appropriate the following : (Each of these items was voted upon by the Conference as they were presented by the committee; the results of the voting appear after each item.)

a. "LB" or "PR" (produce) appear as: $\overline{\text{LB}}$ $\overline{\text{PR}}$ since this methodology would allow the use of only one character unit per line.

(The foregoing item was adopted by majority vote.)

b. The # (double hash mark) be used as a symbol for pounds since Webster's Dictionary does reference that symbol accordingly.

(The foregoing item was adopted by majority vote.)

c. Eliminate requiring the price look-up code number, as these numbers tend to further complicate the tape.

(The foregoing item was defeated by majority vote.)

d. The symbol "/" be used for the word "for" when presenting unit prices, as illustrated in the example above.

(The foregoing item was adopted by a majority vote.)

At this interim meeting, the committee heard presentations from several representatives of producers of this equipment. Their primary concern was that they were receiving varying interpretations of the format used for their ECR (electronic cash register) tapes. They stated that to change the programs for each jurisdiction was extremely expensive and they would like to have settled once and for all a final approval of their formats.

It was the committee's recommendation that since varying interpretations among the jurisdictions have occurred, the best solution to this problem is for each individual company to submit its format to the committee; and if the committee considers it appropriate, that information should be circulated and would hope that all jurisdictions would then accept that view.

The following is a list of examples of present formats in use which the committee considers appropriate.

1.39 lb	@ 1.79	2.49
1.53 LB	@ 0.89	1.36
183	1.50 LB	
1 LB/0.99	1.49 PR	
5.04 lb	@ 1 lb/23 PRO	.97 4.89
PRO .88	1.49 LB	
23	@ 1 LB/.59	
3 lb/1.05	00T D 1	
.75 lb	.26 PR	
0.39/lb		
2.86 lb		
1.12 PR		
.98 LB		
@ .45/1 LB		
.44 PRE		

Note: The use of multiple unit pricing in example 6 above is in conflict with the committee's recommendation in the previous item and not considered appropriate.

(The foregoing item was adopted by majority vote. *)

*However, since Scale Code Item No. 2 was defeated, multiple pound pricing *may* be used for recorded representations only.

4. *S.2. Design of Balance, Tare, Level, Damping, and Arresting Mechanisms.*—A recommendation was received to amend this section to provide specific parameters for devices equipped with automatic zero tracking mechanisms; that is, the maximum value of weight added to the platform that would rezero rather than indicate a weight value and the maximum number of weight applications that could be added before the automatic zero tracking mechanism becomes inoperative.

There has been continuous discussion in recent years concerning the means for an automatic zero maintenance test on electronic weighing equipment. Achievement of a common technique has been hampered by conflicting technical philosophies by different manufacturers, test methods which do not simulate actual use, test observations affected by other scale deficiencies, and a general frustration among weights and measures officials created by competitive disagreement among manufacturers.

Deliberations of the S & T Committee preparatory to and at the 61st National Conference have produced the following conclusions:

1. General Code and Scale Code provisions adopted since 1970 are suitable and sufficient for automatic zero maintenance specification.
2. An active means of zero maintenance to improve weighing in commercial equipment is a desirable addition to weighing technology.
3. Proper adjustment of automatic zero maintenance is an application variable.
4. Initial instructions to weights and measures officials are necessary to provide complete understanding and to eliminate any doubt concerning proper operation of this feature in any particular installation.

The S & T Committee, therefore, recommends deleting existing paragraph S.2.1.3. of the Scale Code and replacing it with the following new nonretroactive paragraph. Since this new paragraph is a mandatory requirement for the performance of a device in any installation, the committee intends that this test be performed by the weights and measures official following normal testing to avoid confusion with other equipment deficiencies, which can be erroneously related to automatic zero maintenance tests.

S.2.1.3. For Scales Designed with Automatic Means to Maintain a Digital Zero Balance Indication.—Scales designed with automatic means to maintain a digital zero balance indication shall be provided with means to meet the requirements of S.1.1. Zero Indication and S.1.4.1. Capacity Indication. However, under normal operating conditions with the scale indicating zero, the maximum load, when placed immediately on the platform, which can be “rezeroed” without indicating a weight value shall be:

- (a) For retail and livestock scales— ± 0.6 scale division (d_d),
- (b) For scales with 2500 scale divisions (n) or less— ± 1.0 scale division (d_d),
- (c) For scales with more than 2500 scale divisions (n)— ± 3.0 scale divisions (d_d).

Add the following definitions:

Scale divisions, number of (n). Quotient of the capacity divided by the value of the scale division. $n = \frac{\text{Cap}}{d} \text{ or } \frac{\text{Cap}}{d_d}$

Scale division, value of (d). The value of the scale division expressed in units of mass is the smallest subdivision of the scale for analog indication (d) or the difference between two consecutively indicated or printed values for digital indication or printing (d_d).

(The foregoing item was adopted by majority vote.)

5. *S.2.1.4. Zero-Load Adjustment, For Monorail Scales.*—The committee received several recommendations to amend this paragraph for clarification purposes. It was the intent of the committee in recommending this paragraph, as adopted by the 59th National Conference, that for digital indicating monorail scales with a capacity of 1,000 lb with a 1 lb minimum increment to require these scales to be equipped with means for setting small tare values and zero closer than ± 0.5 lb. Since there are monorail scales of varying capacities and varying minimum increments, to clarify the application of this paragraph, the committee recommends the paragraph be amended as follows:

~~S.2.1.4. For Monorail Scales.—On a monorail scale equipped with a digital indicator indications, means shall be provided for setting the zero-load balance and any tare of less than five percent of the scale capacity to within 0.02% of scale capacity \pm the value of the minimum operating increment. On an in-motion system, means shall be provided to automatically maintain the zero load balance condition and tare values to within \pm the value of the minimum operating increment these conditions.~~

The committee further recommends that T.3. Basic Tolerance Values be amended to provide specific tolerances for monorail scales for both dynamic and static applications. The committee recommends amendment to the code as follows:

Add the following new paragraphs:

T.3.8. For Monorail Scales.

T.3.8.1. Weighing Statically.—The basic maintenance tolerance shall be 1 lb per 1,000 lb of test load (0.1%). The basic acceptance tolerance shall be $\frac{1}{2}$ the basic maintenance tolerance.

T.3.8.2. Weighing In Motion.—The basic maintenance and acceptance tolerances shall be 1 lb per 1,000 lb of test load (0.1%). On a dynamic test of 20 or more drafts, 10 percent of the individual test drafts may be in error not to exceed two times the basic tolerance provided the error on the total test load of all drafts does not exceed 0.2 percent.

(The foregoing item was adopted by majority vote.)

6. *S.4.2. Adjustable Components.*—A recommendation was received from the Northwest Weights and Measures Association to amend this paragraph to require the span adjustment on electronic indicating elements be designed to be sealed. The committee expresses the view that to direct this requirement to a particular technology would be inappropriate since it was not recommended to require nose irons, pendulums, springs, etc. be designed to be sealed; and especially so since all of these adjustable components are required to be designed so that they cannot be adjusted from outside the scale. However, it was also the committee's view that a particular jurisdiction may require that the housing in which the indicator is encased be supplied with cap screws drilled for sealing so that, in certain instances, studies could be conducted, for example, to determine the capability of a device to remain accurate over a specific period of time. The committee recommends no amendment to this paragraph.

(The foregoing item was adopted by majority vote.)

7. *S.6. Marking Requirements.*—A recommendation was received to amend this paragraph to require that operating instructions be marked on all weighing and measuring equipment. The recommendation was made on the basis that weighing and measuring systems are becoming not only more complex and sophisticated but that many devices are individual designs for particular applications. It was also stated that in certain instances, regular employees of the users of this equipment were temporarily absent; and those employees directed to operate this equipment during this time were not always sufficiently familiar with the equipment and errors could result. It is also a problem for customers to determine that those devices used in direct sales are being properly operated, and for weights and measures officials when encountering this equipment in the field for the first time. It is the view of the committee that in most instances it would be impossible to post on the equipment complete operating instructions and that it is the user's responsibility to fully train all operators. However, the committee does recognize the complexity of these systems; and it is their view that the key to the proper operation

of the equipment is that all operational controls associated with this equipment should be appropriately and clearly identified and marked.

The committee recommends that the General Code be amended by adding the following new paragraph:

G-S.6. Marking, Operational Controls, Indications, and Features.—All operational controls, indications, and features, including switches, lights, displays, pushbuttons and other means, shall be clearly and definitely identified.

Renumber existing paragraph G-S.6 to G-S.7.

(The foregoing item was adopted by majority vote.)

8. *SR. Sensitivity Requirements.*—A comment was received that this section is not clearly understood and seems to require that the sensitivity of a beam scale be precisely twice the value of the minimum graduated interval and that there is no recognition of supersensitive beams; that is, beams in which the sensitivity is so small a weight value that the beams do not oscillate properly within the trig loop. To clarify these requirements, the committee recommends that this section be amended so that the sensitivity requirements indicated in the paragraphs are a maximum value and that “lesser values be recognized.” It is the committee’s view that the appropriate sensitivity is somewhere between $\frac{3}{4}$ and twice the value of the minimum graduated interval. It is also their view that in many instances there are advantages to the inspector in the testing process to actually determine the sensitivity value rather than merely tolerance testing. The sensitivity value and the action of the weighbeam can provide valuable information concerning the condition of the scale under test.

The committee has attempted to restructure the SR paragraphs but could not develop requirements that would clarify completely all of the considerations. The committee recommends this item be tabled for further consideration by the S & T Committee of the 62nd Conference.

(The foregoing item was adopted by majority vote.)

9. *T.3.6.3. Basic Tolerance Values, For Railway Track Scales, Weighing Coupled In Motion.*—The committee received a recommendation to provide a test tolerance for railroad track scales weighing coupled in motion when used for unit train applications only. This recommendation provided for a maximum permissible error on individual cars not to exceed 1 percent and a maximum test train error not to exceed 1 lb per 1,000 lb (0.1%). The

recommendation also set forth a definition for unit trains for commercial applications. Based on the comments received, it was the committee's view that the code *not* be amended.

(The foregoing item was adopted by majority vote.)

10. *Radio Frequency Interference (RFI).*—In its report to the 60th NCWM, the S & T Committee made several recommendations with respect to the problem with electronic equipment resulting from RFI. The committee indicated that the Scale Manufacturers Association (SMA) had formed a subcommittee to study RFI and that this subcommittee would make a proposal for code amendment at the next committee interim meeting. This subcommittee did conduct this study and the following recommendations of the committee are based on that study and recommendations of the SMA subcommittee. It should be noted that recommendations of the SMA subcommittee for code amendment were directed toward the Scale Code. However, it was the committee's view that the recommended amendments were applicable to electronic devices other than scales; consequently, some of these amendments are recommended for inclusion in the General Code.

After careful deliberation, it was the view of the committee that the proposed changes for H-44 represent the most reasonable and practicable means of addressing the RFI question at the present. To go further could result in design requirements on equipment which would be inappropriate for field use and which would be inconsistent with philosophy of H-44.

It must be recognized that whenever RFI conditions are encountered, they appear to be best solved by experienced and knowledgeable service personnel. At the present time, there is little confidence that RFI design requirements imposed at the component level would guarantee satisfactory performance under field conditions.

It was the view of the committee that these changes to H-44 would provide the users with workable guidelines for consideration and alert them to potential degradation of this equipment when operated in an RFI environment. The committee has been advised that the SMA Technical Committee will continue to study the practicability of a more definitive approach to RFI.

The committee recommends adding the following new paragraphs to the General Code:

G-UR.1.2. Environment.—Equipment shall be suitable for the environment in which it is used including but not limited to the effects of wind, weather and radio frequency interference (RFI).

G-UR.3.2. Associated and Nonassociated Equipment.—A device shall meet all performance requirements when associated or nonassociated equipment is operated in its usual and customary manner and location.

Renumber existing paragraphs G-UR.3.2. and G-UR.3.3. to G-UR.3.3. and G-UR.3.4.

G-UR.4.2. Abnormal Performance.—Unstable indications or other abnormal equipment performance observed during operation, shall be corrected and, if necessary, brought to the attention of competent service personnel.

Renumber existing paragraphs G-UR.4.2., G-UR.4.3., and G-UR.4.4. to G-UR.4.3., G-UR.4.4. and G-UR.4.5.

G-N.2. Testing with Nonassociated Equipment.—Tests to determine conditions, such as RFI, which may adversely affect the performance of a device shall be conducted with equipment and under conditions which are usual and customary with respect to the location and use of the device.

Add the following definitions to the General Code:

Usual and Customary.—Commonly or ordinarily found in practice or in the normal course of events and in accordance with established practices.

Radio Frequency Interference (RFI).—Radio frequency interference is a type of electrical disturbance which, when introduced into electronic and electrical circuits, may cause deviations from the normally expected performance.

Amend paragraph UR.2.3. in the Scale as follows:

~~UR.2.3. Protection Against Wind and Weather~~ From Environmental ~~Effects~~ Factors.—The indicating elements, the lever system or load cells, and the load receiving element of a permanently installed scale, and the indicating elements of a scale not intended to be permanently installed, shall be adequately protected ~~against wind and weather effects~~ from environmental factors such as wind, weather, and RFI which may adversely affect the operation or performance of the device.

(The foregoing item was adopted by majority vote.)

11. *Weighing Equipment for Toll Collections.*—The committee received a request that recognition be made in H-44 for dynamic axle load scales used for the axle weighing of trucks, the weights of which are to be used to determine highway road or bridge tolls. The committee was informed that devices of this type are already in use and that, if necessary, code amendments should be made. Since the committee did not have full information as to the design characteristics and performance capabilities of this equipment, the committee recommends that the Office of Weights and Measures obtain as much information as possible so that positive recommendations can be made to the S & T Committee of the 62nd National Conference.

(The foregoing item was adopted by majority vote.)

12. *S.1.6.3. Customer's Indications.*—The committee received a recommendation from the SMA that this paragraph be amended to state that in certain instances the customer's indications on computing scales can be the same as the operator's indications. It is the view of the committee that this interpretation can be made with the existing terminology in the few instances where it would be appropriate. An example of an existing application in which a single indication is provided for both the customer and the operator is certain electronic cash registers interfaced with weighing elements at checkout counters. It is further the committee's view that an amendment to this paragraph could result in conflicting interpretations for many applications; that is, there are few instances in which a single indication would be appropriate because paragraph G-UR.3.2. Position of Equipment requires that customers be able to view both the indications and weighing or measuring operation at the same time.

(The foregoing item was adopted by majority vote.)

CODE FOR LIQUID MEASURING DEVICES

1. *S.1.4.4. Money-Value Computations.*—The committee received several comments regarding the application of this paragraph to retail petroleum dispensers which can indicate total prices to a maximum of \$9.99. It was the committee's view that these devices do, in fact, meet the requirements of this paragraph since this paragraph requires that total prices be indicated for every delivery within either the range of measurement of the device or range of the computing elements, whichever is less. The committee feels there is a need for a recommendation to the Conference since the price of gasoline has risen to the extent that there are many sales in excess of \$10 and customers can be confused when charged

\$12.75 with the pump indicating only \$2.75. It is the committee's interpretation that although devices with only three decades do meet the requirements of S.1.4.4., when sales exceed \$10, these devices do not meet the requirements of G-UR.1.1. Suitability of Equipment since it is used to deliver product with total prices exceeding \$9.99. The committee is fully aware of the problems confronting the petroleum industry with respect to rising prices, vapor recovery, and metrication; and for these reasons, industry is hesitant about making modifications to equipment. It is the committee's view, however, that retail establishments that do in fact make individual sales in excess of \$10 are in violation of G-UR.1.1. and should avail themselves of equipment having the capability of indicating the total price of each individual sale.

The committee recognizes that these modifications cannot be accomplished overnight and recommends to weights and measures officials that they convey this information to the affected parties in their jurisdictions and develop a workable method for an eventual conversion over a reasonable length of time. No amendment to the code is recommended.

Another problem confronting manufacturers caused by rapidly increasing gasoline prices is the urging by the petroleum industries of manufacturers of retail petroleum dispensers and computing elements to respond to the need for an appropriate device capable of computing with unit prices of more than \$1.00/gallon since existing mechanical computers have a maximum unit price capability of \$.999/gallon. Neither the petroleum industry nor weights and measures officials want to again be confronted with the problem of using a unit price based on the price per $\frac{1}{2}$ gallon and then multiplying the total price displayed by two, as was necessary for approximately 200,000 gasoline pumps several years ago. It has been estimated that there are 1.5 million retail petroleum dispensers presently in use.

The response of the S & T Committee to the petroleum industry as a long range solution to this problem was presented in its final report of the 59th NCWM in 1974 and that was to initiate the use of the metric system throughout the petroleum industry. This continues to be our recommended solution. Since the measurement unit would change from a gallon to a litre, a unit price capability of \$.999 on existing retail petroleum dispensers would provide for a computing capability roughly equivalent to \$4 per gallon.

However, if the petroleum industry continues to sell gasoline in U.S. Customary units, what is the recommended solution for the design of digital computers for gasoline pumps? The present design displays total prices in either four or five decades; the unit price, in three decades; and the total quantity, in four decades with the value of the smallest unit being .01 gallon.

How will this design criteria work with unit prices above \$1/gallon? A primary consideration for the design of this equipment is that it meet the requirements of Handbook 44's General Code paragraph G-S.5.5.; that is, the total price displayed must be within $\pm 1/2$ cent of the value obtained when multiplying the measured quantity indicated by the unit price. With the existing design criteria, there are many instances in which customers could not purchase an even dollar's worth of product. For example, if the quantity purchased were 4.54 gallons at \$1.10/gallon, the computed total price would be \$4.994, and the displayed total price would be \$4.99. If you increased the delivery by .01 gallon to 4.55 gallons multiplied by \$1.10/gallon, the computed total price would be \$5.005, rounded off would be \$5.01. Therefore, the displayed total price would go from \$4.99 to \$5.01.

The solution for this problem for retail scales was relatively simple since customers were not accustomed to buying a specific dollar's worth of meat. If a quantity of meat is placed on the load receiving element of a scale which weighs precisely 1.005 lb, the scale makes a decision and presents a net weight indication of either 1.00 lb or 1.01 lb; and if the unit price is \$4/lb, the accompanying total price displayed is either \$4 or \$4.04. No one could possibly buy \$4.02 worth of product at \$4/lb.

Therefore, the committee wishes to recommend to the petroleum industry once again that they immediately initiate a plan to convert to selling gasoline in metric units; that is, litres. It further wishes to recommend to the manufacturers of digital computing elements for retail petroleum dispensers the following design criteria:

- (1) The total quantity should be presented in five decades, indicating from 00.001 gallon to 99.999 gallons;

- (2) The unit price should be presented in three decades, providing a unit price capability from \$.001 to \$9.99. With this application, when the unit price exceeds \$1, the unit price would then be on the basis of whole cents; that is, \$1.00 to \$9.99;

- (3) The total price should be presented in five decades, indicating from \$000.01 to \$999.99.

The next question that arises is what information is necessary to be presented on a console in the kiosk intended for the operator's use only in a post-pay system? It is the view of the committee that if the information is to be used for handwritten sales slips, it would not be necessary to provide quantity indications to .001 gallon, and that .01 gallon would be sufficient. The philosophy for this decision is expressed in Handbook 44's General Code paragraph G-S.5.5., the second sentence, which states: "This does not apply to auxiliary digital indications intended for the operator's use only when these indications are obtained from

existing analog customer indications which meet this requirement." However, if the information is going to be printed by a recording element, it will be necessary to provide 0.001 gallon divisions so that mathematical agreement is provided the customer.

(The foregoing item was adopted by majority vote.)

2. *UR.2.5. Product Storage Identification.*—The committee received comments that this new paragraph, adopted by the 60th NCWM, which included the term "visibly labeled," seemed to preclude color coding identification means. It is the committee's view that color coding is an appropriate means for product storage identification if the key to that code is conspicuously displayed at the service station. The committee recommends that UR.2.5. be amended as follows:

UR.2.5. Product Storage Identification.—The fill connection for any petroleum product storage tank or vessel supplying motor fuel devices shall be permanently, plainly, and visibly labeled marked as to product contained. When the device is marked by means of a color code, the code key shall be conspicuously displayed at the place of business.

(The foregoing item was adopted by majority vote.)

3. *Performance Survey for Retail Petroleum Dispensers.*—The SWMA had recommended that a study be conducted to determine the performance capabilities of retail petroleum dispensers now in use and that this study be coordinated by the Office of Weights and Measures. Unfortunately, the resources available at OWM were not adequate to accomplish the task, and the Office of Weights and Measures recommended to the S & T Committee that the committee develop parameters and methodology for the future conduct of this survey. It is the view of the committee that, although this is an important issue, there are more items of a higher priority to be considered at this time; and the committee recommends to weights and measures officials that there are several paragraphs of H-44 which are useful enforcement tools for equity in measurement. The second sentence of Paragraph G-UR.4. Maintenance Requirements reads, "Equipment in service at a single place of business found to be in error predominantly in a direction favorable to the device user and near the tolerance limits shall not be considered 'maintained in a proper operating condition.'" Paragraph G-UR.4.2. Use of Adjustments states that whenever equipment is adjusted, the adjustments shall be so made as to bring performance errors as close as practicable to zero value.

The committee recommends that these paragraphs, when applied, should bring about equitable measurement practices and will not necessitate a reduction in tolerances.

(The foregoing item was adopted by majority vote.)

4. *Vapor Recovery Systems*.—The committee discussed at length the problems which will be confronting weights and measures officials during the next few years because of the requirements of the Environmental Protection Agency (EPA) concerning vapor recovery installations at both retail and wholesale levels. At its interim meeting, the committee was privileged to have in attendance the following three representatives of the EPA: Mr. J. Haines, Mr. P. Principe, and Mr. R. Ajax. Representatives of the American Petroleum Institute, device manufacturers, and nozzle manufacturers were also present. These representatives presented valuable input during this meeting. The committee also received comments from the State of California.

The committee concluded that the major concerns of the weights and measures officials can be summed up as follows:

- I. On systems equipped with vapor recovery capabilities:
 - a. the diversion of liquid flow, and
 - b. the accuracy effect on the measuring system;
- II. Adequate proving equipment;
- III. Uniform and appropriate test procedures; and
- IV. Violation of EPA requirements by weights and measures officials.

The following material copied from comments submitted to the EPA on December 29, 1975 by Standard Oil Company of California presents valuable information in two of the above areas.

9.4 WEIGHTS AND MEASURES CONSIDERATIONS

The main vapor recovery concern of weights and measures would appear to be the possible diversion of the liquid flow after it has been metered.

In general, this problem is not the fault of the nozzle, rather, the design of the vehicle fill neck. Figure 9.1 shows a fill neck configuration that presents the major problem with overfill. As shown, the initial portion of the fill neck is horizontal with a turn in the pipe located such that the end of the nozzle spout points at this elbow. This configuration allows the flow of product to splash back

and cover the high level sense port. This causes the nozzle to shut off. The general procedure, then, is to dispense the product at a lower flow rate. Reducing the flow rate prevents the splash from covering the sense port. The problem now is that the flow is slow enough to be diverted back through the vapor passage and hose without covering the high level sense port after the tank is full.

It is interesting to note that this same failure to shut off can happen with a standard nozzle. When it did, though, the overflowing product would run on the ground. That is, it was much more noticeable before the vapor recovery nozzle was installed.

It is important to note that the diversion of flow takes place within the vehicle's fill neck, and not within the nozzle. The vapor recovery nozzle simply provides an effective path for capturing the liquid that would have otherwise spilled on the ground.

The short-term solution is to train the service station attendant to recognize the types of vehicle fill necks that are going to give him problems. This can be done as we gain experience in identifying the problems. Bulletins, similar to service bulletins issued when new automobiles come on the market, could be distributed to service stations having vapor recovery.

The long-range solution is to incorporate in fill neck standards those criteria that will eliminate the problem. For example, one of the recommendations of the Fill Pipe Compatibility Task Force in the Society of Automotive Engineers' (SAE) Fuel Supply Systems Committee⁵ is that:

"The recommended straight length of fill pipe measured from the face should be at least 3 inches (7.62cm). The straight length of the fill pipe should not be less than 30° measured from the horizontal with 45° being the preferred angle."

This type of provision would produce a fill neck similar to that shown in figure 9.2. It is obvious that the high level sense port will be covered thereby automatically shutting the nozzle off before product reaches a point that would cause liquid to flow into the vapor passages, hose and return piping.

A second concern of weights and measures is the effect on the accuracy of the dispensing system. That is, when the meter is checked for accuracy, is the vapor recovery system going to affect the amount of product dispensed into the sealer's test container?

It is important that a customer receive the same amount of product wherever he may choose to make his purchase. This would be true at any station having the balance type of vapor recovery system. This is not the case with vacuum assist systems.

The variability of design among vacuum assist systems, and even to a certain degree from one system to another of the same manufacturer, would preclude assurance that a customer would receive the same amount of fuel at every station. Some vacuum assist systems are designed to return vapor to liquid (V/L) ratios very near 1:1. Others are designed to have V/L ratios as high as 3:1. With vacuum assist systems having large V/L ratios, there is the potential to evaporate gasoline that would not otherwise have evaporated. With no control over the vacuum and/or the V/L ratios, the customer could receive somewhat different amounts of product depending on the station he chooses.

The balance system, on the other hand, does not have this problem of evaporating gasoline. Since the balance system relies on natural forces as its driving force to move the vapors, there is no potential for evaporating gasoline by exposing it to large quantities of air as there is with the vacuum assist systems.

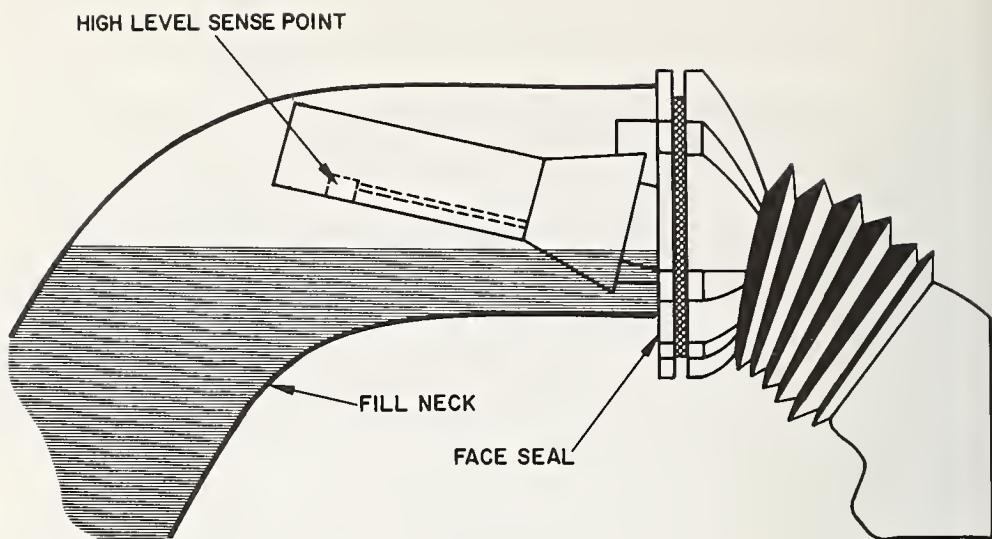


FIGURE 9.1.

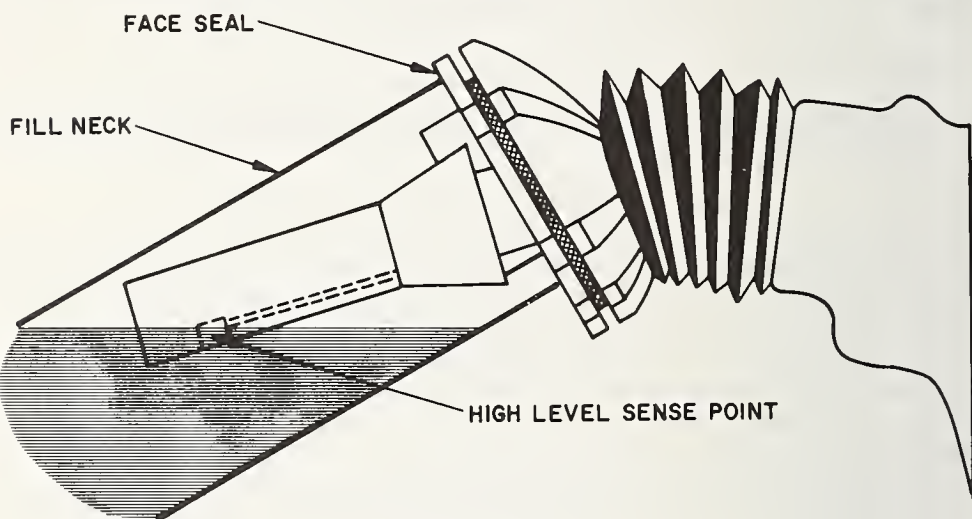


FIGURE 9.2.

For further information, the committee recommends that weights and measures officials obtain the Federal Register of Thursday, October 9, 1975, Part III, Environmental Protection Agency, Stage II Gasoline Vapor Recovery, Proposed Decision, Amendments, and Test Procedure.

At this time, the committee is not prepared to make recommendations for code changes on this subject, but will continue to study the problems of vapor return of petroleum vapors. The committee does recommend, however, that when a weights and measures official is called upon to test a system utilizing vapor return capabilities, the tests be conducted in the manner in which the meter and system is being used. To do otherwise would result in an error being adjusted into the system.

(The foregoing item was adopted by majority vote.)

5. *N.1. Test Liquid.*—The committee was informed of a topical error in the amendment of paragraph N.1. Test Liquid at the 60th NCWM. The committee wishes to correct this oversight in N.1. so that the seal or tag requirement correctly applies as intended only to wholesale devices.

Amend the second sentence in paragraph N.1. to read:

“... A seal or tag should be attached to wholesale devices by the weights and measures official following a satisfactory examination indicating the product used during the test.”

(The foregoing item was adopted by majority vote.)

6. *Code for Liquid Measuring Devices.*—During the last year, the Office of Weights and Measures has been conducting a study on milk meters used as receiving meters in dairy plants. As a result of the study, the Office of Weights and Measures will submit proposed language for this application to the S & T Committee of the 62nd National Conference.

(The foregoing item was adopted by majority vote.)

CODE FOR CRYOGENIC LIQUID MEASURING DEVICES

1. *Code for Cryogenic Liquid Measuring Devices.*—The committee recommends the code be removed from tentative status and made final. The committee further recommends amendment to the code as follows:

Add the following new paragraph:

UR.2.7. Pressure of Tanks With Volumetric Metering Systems Without Temperature Compensation.—When the saturation pressure of the product in the vendor's tank exceeds 35 psia, a correction shall be applied to the written invoice or printed ticket using the appropriate tables provided in NBS Technical Note 361, Revised; or the saturation pressure shall be reduced to 30 psia (if this can be safely accomplished) prior to making a delivery.

The committee also recommends amending the paragraphs throughout this code so that all references to metric units are spelled according to the recommendation of the NCWM; that is, specifically, “re” instead of “er” for the words “metre” and “litre” and their derivatives.

Change the title of paragraph T.1. to read: “Basic Tolerance Values.”

Add the following new paragraph:

T.2. To Tests Using Transfer Standards.—To the basic tolerance values that would otherwise be applied, there shall be added an amount equal to two times the standard deviation of the applicable transfer standard when compared to a basic reference standard.

Add the following sentence to the end of paragraph N.3.2.:

“Testing uncompensated volumetric meters in a continuous recycle mode, appropriate corrections shall be applied if product conditions are abnormally affected by this test mode.”

Amend paragraph UR.2.3. to read as follows:

UR.2.3. Vapor Return Line.—A vapor return line shall not be used during a metered delivery.

Amend paragraph UR.2.4. by adding the following to the beginning of the paragraph:

“On a dry hose system. . . .”

(The foregoing item was adopted by majority vote.)

CODE FOR VEHICLE TANKS USED AS MEASURES

1. *Code for Vehicle Tanks Used as Measures.*—The committee received comments and recommendations from the State of Maryland as follows:

ITEM I.

Problem: In the past year or so retailers of liquid fuel have steadily increased their complaints and concern relative to what they feel are inaccurate deliveries from the loading terminal to the service station. Many factors, to be sure, can attribute to this situation and obviously not all will be mentioned here.

We have observed that the topography at the point of delivery does not always permit appropriate use of indicators in compartments used as measures. Further, it appears that most of the major firms in the Maryland area are utilizing the wholesale meters at the terminal for determining the quantity and, in addition, for billing.

In addition, we are told that some “air quality” agencies are now preventing the opening of “domes” on fuel transports. Other like agencies may follow this pattern. Certainly, for some vapor recovery systems to be effective, the receiver of the fuel will not be able to observe the interior of any compartment after it has been emptied.

Considering that (1) those transporting fuel do not wish to increase their vehicle weight by adding vehicle tank meters (several meters will be required for accuracy of measurement with various types of fuel and in order to preclude contamination); (2) many firms are now utilizing the wholesale meter at the terminal; (3) that the measured compartment indicator is, in reality, nothing more than a means of checking; and (4) that vapor recovery systems may eventually result in measured compartments becoming antiquated; we believe that some security means should be provided.

Proposed Solution: The suggested solution will not guarantee accurate delivery in all cases. This is particularly true when deliveries are made after normal business hours. It will, however, provide weights and measures officials with an additional tool (through surveillance) to help ensure accurate deliveries without making it necessary to place vehicle tank meters on the transporting vehicles.

We propose the addition of a User Requirement in the Vehicle Tanks Used as Measures Code.

UR.1.3. Securing Outlets.—All outlet valves and fill openings, or any opening of a compartment, from which commodity can be removed or diverted, shall be closed and shall have security seals affixed in a manner to prevent them from being opened without destroying or mutilating the seal. Security-type seals will be affixed at the time of loading or when the quantity is determined and will remain intact until the commodity is delivered to the designated purchaser or receiver. Those security-type seals used for this purpose will be prominently and definitely identified for each using firm and loading point. They shall be safeguarded and maintained under the control of a specific individual at the point of loading and none except those affixed as indicated, herein, shall accompany the delivering vehicle.

Add a paragraph requiring the use of a “visigage” or similar equipment in the line of each vehicle tank meter to provide a means for the purchaser to determine the total product represented in the delivery was actually delivered.

The committee recommends no amendment to the code for the following reasons:

a. Representatives of the Environmental Protection Agency indicated that service station operators could open the hatch before and after delivery without violating regulations;

b. Since most loading operations are conducted by the driver of the equipment and he can apply a seal at any time prior to the delivery, the seal would have no significance since the driver, after completing the loading operation, could deliver some product at any location of his choice and then apply the seals before the ordered delivery was made.

ITEM II.

Problem: Occasionally we receive indications that “split deliveries” of an amount of commodity for more than one purchaser is carried, simultaneously, in one measured compartment. We do not believe that this is a widespread problem, but there is no specific language prohibiting it. To be sure, the Weights and Measures official can state that a compartment used as a measure is

inappropriate for use with split deliveries, but we feel that obvious and specific language would be a deterrent. Obviously, "split deliveries" do not provide accurate measurement.

Proposed Solution: We suggest that a new section be added to the User Requirements of Vehicle Tanks Used As Measures Code.

UR.1.4. Multiple Deliveries.—Each compartment shall be used only for single deliveries, and shall not simultaneously contain amount of commodity for more than one purchaser or receiver.

The committee recognizes this problem and recommends paragraph UR.1.2. be amended as follows:

UR.1.2. Delivering.—During a delivery, a vehicle shall be so positioned as to assure complete emptying of a compartment. Each compartment shall be used for an individual delivery only; that is, an individual delivery shall consist of the entire contents of a compartment or compartments.

(The foregoing item was adopted by majority vote.)

CODE FOR FARM MILK TANKS

1. *S.3.2. Gage Rod.*—The committee received a recommendation that this paragraph be amended to require the gage rod be located within six inches of the center of the tank, especially for tanks installed partially within the milk house. Sufficient information was not presented to the committee to make any recommendations for code amendment. The committee will obtain further information and be prepared to make a recommendation following its next interim meeting. The committee is also aware that farm milk tanks are rapidly increasing in size and that exterior gages and graduation plates are being used rather than gage rods. The committee will prepare recommendations for amendment to the code based on the design principles set forth for sight gages on provers for action by the 62nd National Conference.

(The foregoing item was adopted by majority vote.)

CODE FOR LUBRICATING OIL BOTTLES

1. *UR.1. Drainage.*—The committee received a recommendation that this paragraph be deleted as it is not practical. It is the committee's view that this is a user's requirement and should not be deleted but rather amended as follows:

UR.1. Drainage.—Lubricating-oil bottles shall be permitted to drain into the oil-fill pipe for such period of time as is necessary to provide for the complete accurate delivery.

(The foregoing item was adopted by majority vote.)

CODE FOR TAXIMETERS

1. *Definitions.*—The committee received a recommendation that a definition be provided for the word “hired” as used in the code. The committee agrees with this recommendation and recommends amendment to the code by adding the following definition:

Hired. A taximeter is “hired” when it is operative with respect to all applicable indications of fare or extras. The indications of fare include time and distance where applicable unless qualified by another indication of “Time Not Recording” or an equivalent expression.

(The foregoing item was adopted by majority vote.)

CODE FOR ODOMETERS

1. *S.1.3. Value of Minimum Indication.*—The committee received a comment from Ryder Truck Rental, Inc. that when the Conference adopted the change to the Code for Odometers which increased the application of the code to vehicles with a gross vehicle weight of from 10,000 lb to 20,000 lb, most vehicles in that weight range were equipped with odometers with six significant decades, the least significant decade of which indicates in miles; that is, the odometer could be described as 999,999 miles \times 1 mile rather than 99,999.9 miles \times 0.01 mile.

Ryder Truck Rental stated that with trucks in this weight range, it is necessary to maintain records for mileage traveled up to 1,000,000 miles rather than 100,000 miles and, consequently, could not provide 0.1 mile indications; further, in the rental of all vehicles regardless of weight, the customer is charged on the basis of miles traveled—never to the nearest $\frac{1}{10}$ mile. The primary reason for requiring an odometer to indicate in $\frac{1}{10}$ -mile units is for testing purposes and *not*, as is true with other codes, to require customers to be charged to the nearest $\frac{1}{10}$ mile. Ryder Truck Rental, who incidentally cooperated with the Office of Weights and Measures in the initial study for the development of an odometer code, offered an alternative test procedure that could be used to determine the accuracy of these odometers indicating in one-mile increments. Neither the committee nor OWM had time to evaluate this test procedure prior to the issuance of this tentative report.

The committee agrees that requiring odometers to indicate in $\frac{1}{10}$ -mile increments is not necessary provided this alternative test procedure is feasible.

Since sufficient information is not available at this time for positive action by the 61st Conference, the committee recommends deferring this item for action pending further study.

(The foregoing item was adopted by majority vote.)

1. *S.2.1. Marking Requirements, Operating Instructions.*—The committee received comments from SWMA that some devices included in this code, especially laundry driers, had the capability of accepting more than one coin for dispensing services and, in some cases, would accept more coins than service cycles could be rendered. The committee recommends amendment to the code as follows:

Amend paragraph UR.1. as follows:

UR.1. Statement of Rates.—The price in terms of money per unit or units of time for the service dispensed and the number of coins the device will accept and be activated by at one time, shall be clearly prominently, and conspicuously displayed.

(The foregoing item was adopted by majority vote.)

2. *S.1.1.6. Discontinuous Indicating Parking Meters.*—The committee received comment that the cost of designing equipment to meet this requirement far exceeded the value rendered. The parking meters referenced are those that, when activated by the insertion of a particular coin for a specified amount of time, indicate with an indicator and graduation the total time purchased; but after a short interval, the indicator “disappears.” When the time purchased expires, the “Time Expired” flag appears.

The committee received many comments from users of this equipment that this technology should be recognized. After serious consideration the committee recommends the following amendment to paragraph S.1.1.6.:

S.1.1.6. Discontinuous Indicating Parking Meters.—For parking meters with a capacity of 2 hours or less, an indication of the time purchased shall be provided for a minimum of one minute for times less than one hour and a minimum of two minutes for times of one hour or more at the time the meter is activated. For parking meters with a capacity of more than two hours, convenient means shall be provided to indicate to the purchaser the unexpired time.

During discussion which ensued on this item, a motion was made, seconded and passed to change the amendment to paragraph S.1.1.6. so that the paragraph would read:

S.1.1.6. Discontinuous Indicating Parking Meters.—An indication of the time purchased shall be provided for a minimum of

one minute for times less than one hour and a minimum of two minutes for times of one hour or more at the time the meter is activated. Convenient means shall be provided to indicate to the purchaser the unexpired time.

(The foregoing item as amended was adopted by majority vote.)

CODE FOR DRY MEASURES

1. *Code for Dry Measures.*—Comment was received that the application section of this code should be amended to indicate that berry boxes are not included. The committee recommends that the application section be amended as follows:

A.3. This code does not apply to berry baskets and boxes (for which, see Code for Berry Baskets and Boxes).

Renumber existing paragraph A.3. to A.4.

(The foregoing item was adopted by majority vote.)

CODE FOR BERRY BASKETS AND BOXES

1. *Tolerances.*—The committee received a recommendation that the code be amended by deleting the tolerances in deficiency. The committee recommends that the code be amended by eliminating the tolerances in deficiency.

(The foregoing item was adopted by majority vote.)

2. *Capacity Marking.*—The committee received a recommendation that the code be amended by requiring the capacity be marked on the basket or box. It is the committee's view that although consumers today do not recognize the quantities of these boxes when displayed for sale, requiring the capacity to be marked would not be a sufficient aid to the consumer. It is their view that the problem is in the merchandising of these measures since, in most instances, the sign posted on the display of these measures simply indicates a price per "box." The committee has recommended to the L & R Committee that they recommend amendment to the Model State Method of Sale of Commodities Regulation that would require merchandisers to conspicuously post on the display the price of the item and the quantity when offering or exposing for sale small fruits in these measures; for example, strawberries—dry pint—39¢; or cherry tomatoes—59¢ per dry pint.

(The foregoing item was adopted by majority vote.)

3. *Two-Quart Size, Berry Baskets and Boxes.*—The committee received a recommendation that this code be amended to include a two-dry-quart berry basket or box, especially for the retail sale of grapes. It is the committee's view that no amendment be made to the code and that packaged berries and small fruits in quantities other than one-half dry pint, one dry pint, and one dry quart be sold only by weight.

(The foregoing item was adopted by majority vote.)

OTHER ITEMS

1. *Handbook 44 Replacement Sheets.*—The committee discussed the problem concerning the timely printing and distribution of these replacement sheets and referred its recommendations to the Committee on National Measurement Policy and Coordination.

2. *International Organization of Legal Metrology (OIML).*—The committee discussed the participation of the United States in OIML and the implementation of the International Recommendations into U.S. regulations (Handbook 44 especially). The recommendations of the committee appear in part in Item 1 at the beginning of this report, and the committee further recommends that the Office of Weights and Measures disseminate as widely as possible to NCWM members all information concerning OIML activities, International Recommendations, and the philosophies expressed therein.

3. *Weighing Systems Performance Criteria.*—The committee received several recommendations from the State of California on the following subjects:

- a. Providing values for the maximum deviation between the results of indicated values for loads applied to individual sections on vehicle, livestock, and railroad track scales;
- b. Repeatability of zero indications;
- c. The application of acceptance or maintenance tolerances.

Time was not available to the committee to discuss fully all of these recommendations and, consequently, the committee cannot make any positive recommendations for code amendment. However, the committee will include these items for future study and would appreciate receiving any comments from interested parties.

(The foregoing items were adopted by majority vote.)

4. *Other Future Items.*—The committee received comments or suggestions on several other items; however, time was not available to make any recommendations on these subjects. Since the committee was requested to indicate in its reports those items which it is considering for future study so that interested parties may make recommendations, we have listed the following:

- a. A code for kilowatt hour meters.
- b. Vapor recovery systems.
- c. Scale Code requirements for postal and parcel post scales.
- d. Liquid feed meters.
- e. Examination procedure outline for counting scales.

The committee urges Conference members to make additional recommendations to the committee for other items for future study either prior to the Conference or at its open meeting during the Conference.

(The foregoing item was adopted by majority vote.)

5. *U.S. Postal Service.*—As a result of recommendations made by members of the Liaison Committee and the S & T Committee, the Postal Service has prepared a final maintenance bulletin setting forth test procedures for scales. The committee wishes to commend the Postal Service for their efforts to develop a program which should result in better weighing devices and maintenance of weighing equipment in post offices. If anyone desires a copy of this bulletin, he may contact the Office of Weights and Measures.

Discussion ensued on this item, resulting in a motion being made, seconded and passed, to amend this item to read:

U.S. Postal Service Maintenance Bulletin No. MMO-31-76.—This Maintenance Bulletin shall be referred to the incoming S & T Committee for proper review and consideration at the 1977 NCWM.

(The foregoing item as amended was adopted by majority vote.)

The committee expresses its appreciation to all who have contributed to and participated in the committee deliberations. The committee urges all weights and measures officials and other

affected parties to promptly communicate with the committee on all matters of concern. It is only in this manner that the committee can consider all problems and fully evaluate all situations prior to issuing its reports.

K. J. SIMILA, *Chairman*, Oregon

J. R. BIRD, New Jersey

W. E. CZAIA, Minnesota

M. L. KINLAW, North Carolina

C. WOOTEN, Florida

O. K. WARNLOF, *Staff Assistant*,
NBS

H. F. WOLLIN, *Exec. Secy.*, NCWM

Committee on Specifications
and Tolerances

(On motion of the committee chairman, the report of the Committee on Specifications and Tolerances was adopted in its entirety by the Conference by majority vote. The Conference also authorized the executive secretary to make any appropriate editorial changes in the language adopted by the Conference, provided that the requirements thus adopted are strictly adhered to.)

REPORT OF THE COMMITTEE ON NATIONAL MEASUREMENT POLICY AND COORDINATION

Presented by S. D. ANDREWS, *Chairman*; Director of Division of
Standards, Department of Agriculture and Consumer Services,
Tallahassee, Florida

(Thursday, July 15, 1976)



The Committee on National Measurement Policy and Coordination submits its final report to the 61st National Conference on Weights and Measures. The report consists of the tentative report as offered in the Conference Announcement, and as amended by the final report. The report represents recommendations of the committee that have been formed on the basis of written and oral comments received during the year and oral presentations made during the open meeting of the committee.

The formation of the new Committee on National Measurement Policy and Coordination (P & C Committee) was initiated during the 1975 NCWM at the recommendation of the special Committee

on Metric Planning whose tenure expired with the close of the 60th Conference. It was proposed that the new committee will assume the responsibilities and objectives of the Metric Committee which had been established to deal with initial planning for metric conversion in the field of weights and measures in the United States. In addition, the P & C Committee is to serve as a policy-making and coordinating body of activities within the NCWM on matters of national and international significance; such matters to include (a) metrication, (b) International Organization of Legal Metrology (OIML), and (c) other standards organizations—American National Standards Institute (ANSI), International Standards Organization (ISO), American Society for Testing and Materials (ASTM), National Conference of State Legislatures (NCSL).

Another objective will be to delegate the organization of work groups to meet the responsibility of the Conference toward standardization organizations such as the establishment of the Weights and Measures Practices Sector Committee for the American National Metric Council. In keeping with the function of the new committee, the NCWM representative to the U. S. Advisory Committee for International Legal Metrology (OIML), J. F. Lyles, presented a report on his participation in the activities of OIML. The report is shown below.

A further responsibility of the P & C Committee will be to plan and coordinate matters of policy and activity among the other standing committees of the NCWM—Specifications and Tolerances, Laws and Regulations, Education, and Liaison.

Report of the NCWM Representative to the Advisory Committee on
International Legal Metrology
on the
International Organization of Legal Metrology

There has been a great deal of activity within the International Organization of Legal Metrology (OIML) of interest to the weights and measures community since our last National Conference. Perhaps the most important action taken by OIML over the past year has been a considerable expansion of its technical program. As you know, International Recommendations produced by OIML are the products of various technical study committees (called Reporting Secretariats). These committees are composed of representatives from Member Nations of OIML and each committee is chaired by a single representative of the nation charged by the International Committee of Legal Metrology, the technical program arm of OIML, to direct the committee's work. During this past year 100 new technical study committees were created by the International Committee to pursue the development of International Recommendations within the next five years. Of particular interest to us are these study areas:

1. development of accuracy classes for length measuring devices (Responsible nation—USSR);
2. development of LNG fluids and materials property data and LNG instrumentation and measurement methodology (Responsible nation—USA);

3. development of the chain of calibration for gas measuring devices and general principles for establishing device errors (Responsible nation—USA);
4. development of verification methods for domestic and industrial gas meters in service (Responsible nation—USA);
5. development of metrological and technical specifications for standards used in verifying in-service weighing devices (Responsible nation—USA);
6. development of in-service examination procedures for weighing devices (Responsible nation—USA);
7. development of metrological specifications for laboratory mass standards (Responsible nation—USA);
8. development of principles upon which prototype (pattern) evaluation will be conducted (Responsible nation—USA);
9. development of principles for the initial and subsequent calibration of weighing and measuring devices (Responsible nation—USA).

As you can see, all but one of these new committees are to be directed by the United States, which means that weights and measures officials, either individually, or through the Standing Committees of the National Conference, will be brought into this work. These are important and challenging opportunities for the National Conference in that they will lend recognition to the weights and measures expertise that exists within the United States and will allow us to meet and prosper from relationships with our weights and measures counterparts from other nations. From an important practical standpoint, the technical decisions made within these international committees will offer our industry much needed guidance on conversion to the metric system in that recommended technical requirements will all be given in units of the International System (SI).

I would also like to report on major efforts by the United States to revise OIML International Recommendation #3 on "Non-Automatic Weighing Devices" and on participation in an important technical meeting in London dealing with liquid measurement systems. With respect to International Recommendation #3, the Office of Weights and Measures and the Scale Manufacturers Association exerted a great deal of effort during the past year in cooperation with France and Germany to propose revisions to this basic scale code that will pave the way for its acceptance by our industry and by the National Conference. Basically, the Recommendation contains a different view on tolerance application that will prove beneficial to industry and the weights and measures sector alike. Otto Warnlof of OWM will offer a presentation on this subject during the S & T Committee Report. I wish only at this time to recognize the important contributions made by the Scale Manufacturers Association and OWM in this endeavor.

With respect to United States efforts on the draft International Recommendation dealing with liquid measurement systems, I would like to relate some background on this particular OIML effort because it clearly demonstrates the importance of United States participation in OIML and the need for involvement from American industry and the weights and measures community. In June 1975, France and Germany circulated a draft OIML International Recommendation to member nations and scheduled a technical level meeting on the draft for December 1975, in London. The draft dealt with requirements for all

types of liquid measuring systems for petroleum and other liquids (except water). Such measuring systems included: retail gasoline pumps found in service stations; systems for offloading crude and refined petroleum products from ships, barges, and rail tankers into terminal areas; systems fitted into oil pipelines for transportation of products from terminals or from production areas, and other similar devices. OWM and the American Petroleum Institute evaluated the draft Recommendation and found a number of technical shortcomings. The most notable involved differences in measurement practices between Europe and the United States concerning permissible measurement errors in handling petroleum products and differences in opinion over the design and operation of equipment used to remove air or gas entrapped in petroleum before measurement of the liquid occurs. From an economic standpoint, these differences were quite important. For example, international adoption of the German/French proposal that measurement systems be allowed a maximum uncertainty of ± 0.50 percent, as compared to U.S. practice of ± 0.12 percent, could cost the U.S. up to \$31 million a year in petroleum import overcharges. Similarly, international adoption of the German/French design for air or gas separation equipment would place \$25 million worth of U.S. exports of such equipment in immediate jeopardy.

METRICATION

1. On October 10, 1975, Richard L. Thompson, NCWM Chairman (Maryland), and Sydney D. Andrews, P & C Committee Chairman (Florida), appeared before the Senate Committee on Commerce for the purpose of presenting testimony on behalf of the National Conference on Weights and Measures in support of metric conversion legislation. Passage by Congress of the Metric Conversion Act of 1975 and the signing of the Act by President Ford on December 23, were events of great significance in the field of weights and measures.

The Act declared a national policy of coordinating the increasing use of the metric system in the U.S. and specified the establishment of a United States Metric Board to coordinate the voluntary conversion to the metric system. Also, NCWM was specifically referred to in the Act which called for:

- (a) nominations to the U.S. Metric Board as recommended by the National Conference on Weights and Measures, and
- (b) consultation by the Secretary of Commerce with the National Conference on Weights and Measures in order to assure that State and local weights and measures officials are
 - (i) appropriately involved in metric conversion activities, and

- (ii) assisted in their efforts to bring about timely amendments to weights and measures laws.

With respect to nominations by NCWM for the U.S. Metric Board, the P & C Committee, together with members of other standing committees and Conference officials who attended the interim meetings, worked out the following method for the selection of candidates should they be called for prior to the annual meeting of the Conference in July. These procedures are as follows:

- (a) Three names and an alternate are to be submitted by each of the standing committees for screening by the P & C Committee.
- (b) The P & C Committee will then recommend its list of selected qualified candidates to the Executive Committee.
- (c) The Executive Committee will make the final selection and submit the names of three individuals to the appropriate authorities (as yet undetermined) who will have responsibility for the creation of the U.S. Metric Board.

If the Executive Committee is required to submit its nominees prior to the next annual Conference, it will present its decision to the Conference for ratification. On the other hand, if the deadline for nominations falls after the next Conference, this matter will be acted upon during the Conference.

A letter was sent to President Gerald R. Ford on March 17 by Chairman Richard L. Thompson pointing out that weights and measures officials throughout the nation have actively supported the move to metric and are now most anxious to provide their measurement expertise and assistance to help plan, coordinate, and implement the voluntary conversion to the SI metric system, particularly as it involves the everyday measurements in the marketplace. The President was advised that naming a weights and measures official to the U.S. Metric Board was essential to the maintenance of a sound and uniform weights and measures system in the nation. Instructions for the submission of nominations to the Metric Board were also requested.

In keeping with the procedure adopted, nominations were received from the standing committees and a recommendation was made to the Executive Committee. The Executive Committee approved the recommendation and offered to the President the following nominations to the U.S. Metric Board: Sydney D. An-

draws, Director, Division of Standards, Florida Department of Agriculture and Consumer Services; Alternates: Kendrick J. Simila, Administrator, Weights and Measures Division, Oregon Department of Agriculture; C. G. Gehringer, Vice President, Operations, Pennsylvania Scale Company (retired); George E. Mattimoe, Deputy Director, Division of Weights and Measures, Hawaii Department of Agriculture; and M. W. Jensen, President, Can Manufacturing Institute (retired).

The committee will follow developments with respect to the Metric Conversion Act and will report its recommendations to the Executive Committee and to the delegates of the 61st NCWM.

(The foregoing item was adopted by majority vote.)

2. An organizational meeting of the Weights and Measures Sector Committee of the American National Metric Council (ANMC) was held on November 6, 1975, at the ANMC headquarters in Washington, D.C. Mr. Sydney D. Andrews, immediate past chairman of the NCWM, was elected Chairman of the Sector Committee at the meeting. Mr. Daryl Tonini, Technical Director, Scale Manufacturers Association, has assumed the secretariat.

The committee defined its purpose as an advisory body to NCWM, as a focal point for information compilation, and as an interface within ANMC not available to the NCWM. Assignments were made for the study and drafting of metric provisions for Handbook 44 in the areas of scales and petroleum measuring devices. The committee also called upon other device manufacturers and the packaging industry to initiate metric activity in their respective organizations and associations.

The Weights and Measures Sector Committee held a meeting on April 4, 1976, in conjunction with the second annual conference and exposition of the ANMC in Washington, D.C. Another meeting of that committee was held at the National Bureau of Standards on July 14 in conjunction with the 61st NCWM.

3. At the recommendation of the P & C Committee, NCWM Chairman Richard L. Thompson wrote to Elliot L. Richardson, Secretary of Commerce, on March 8, concerning the Conference position on the spelling of the terms "metre" and "litre." Excerpts of the letter follow.

At the present time there exists a difference concerning a fundamental issue between a resolution adopted by the National Conference on Weights and Measures and public statements emanating from your Department on the subject of the proper spelling of the words "metre" (er) and "litre" (er).

The National Conference on Weights and Measures is dedicated to the promotion of uniformity in matters pertaining to weights and measures nationwide. In order to secure this desirable uniformity, the National Conference on Weights and Measures, at its 60th annual meeting held in 1975, passed a resolution strongly advocating the spelling of the basic unit of length "metre" and the unit of volume "litre," both with the "re" ending.

This resolution was adopted for several reasons, one of which was to reduce the confusion caused by the "er" spelling of the basic unit of measurement (meter) and the measuring device (meter), as well as the act of measuring something with such a device (meter). This differentiation in spelling will make clearer the fundamental technology in laws, regulations, specifications, tolerances, technical publications, and many other applications. The fact that the Metric Conversion Act refers to amendments to weights and measures laws would indicate the need for an expression of national uniformity on such a basic issue, and we hope you share our desire to accomplish this.

An even broader consideration, and perhaps an even more compelling one for adopting the "re" spelling for these units of measure (metre and litre), is that they have been approved by the International Organization for Standardization (ISO) and the International Organization of Legal Metrology (OIML), a treaty organization to which the United States belongs. . . .

. . . The National Conference on Weights and Measures strongly urges you to resolve this spelling difference in favor of the "re" ending for the two measurement units, metre and litre, in the interest of uniformity within our own country and with the other English-speaking countries around the world (and some non-English-speaking countries) which have adopted the "re" spelling.

A response to Chairman Thompson's letter to Secretary of Commerce Richardson was received indicating that while uniformity had been established within the U.S. Department of Commerce by adopting the "er" spelling for metre and litre, they recognized the "re" spelling as acceptable on an equal basis. He further indicated that this matter would probably be submitted to the U.S. Metric Board for resolution and the Department of Commerce would abide by its decision.

(The foregoing items were adopted by majority vote.)

POLICY

In discussion of its role in the setting of Conference policy, the committee considered several suggestions for the plan, development, and dissemination of NCWM policy statements. Initially, it is the plan of the P & C Committee to identify, review, and report on policy statements that were adopted by previous Conferences, to prepare new statements of policy as deemed advisable for NCWM action, and to issue such statements through an appropriate means to all delegates and interested parties.

In the development of policy statements, the P & C Committee would be glad to receive and recognize statements of policy by

other NCWM committees or as recommended by individual members. The committee is aware of the potential problem that could be caused by statements and recommendations of NCWM committees and members which may be of a "policy" nature or could be so construed even though that is not the intent. Thus, to avoid confusion and an excessive number of statements, only those that are specifically and clearly identified as "statements of policy" and are adopted by the Conference shall be regarded as NCWM policies.

All statements of policy that have been appropriately developed and adopted by NCWM would then be printed and distributed following the annual meeting. Although the form of printing and distribution is yet undecided, it has been suggested that policy statements be issued with the Conference Summary Report that is sent to all delegates shortly after the Conference. The statements could be of a set format and be prepared on separate sheets so as to be suitable for insertion in a notebook or for filing.

As a beginning, the committee recommends consideration of the following items regarding matters of policy:

1. Example

An example of the type of Policy Statement which will be prepared and distributed with the Conference Summary was handed out and discussed at the Open Meeting of the committee. Suggestions were offered on the style and format as well as amendments to some of the previous policy statements presented on the example. All suggestions will be considered by the committee during the coming year.

2. Committee Reports

The committee considered several suggestions for improving the presentation and voting procedures of committee reports during the Conference. The committee agrees with the suggestion to devote more time on the program for the consideration and action of committee reports and has requested the executive secretary to schedule the program accordingly. Several other suggestions relating to the presentation of reports will also be implemented.

The suggestion on improving voting procedures is deemed to be of such importance as to warrant being covered by a statement of policy as follows:

Voting Procedure

The National Conference on Weights and Measures has estab-

lished voting procedures that are specified in the Conference Organization and Procedure as follows:

"8. Voting

All questions before a meeting of the Conference are decided by majority vote of those active members present and voting."

To further facilitate the efficient and orderly taking of votes during a meeting of the Conference, all voting shall be by either a show of hands or a standing count of voting delegates.

3. Conference Printed Material

The committee heard a report on the growing problem that NBS has had with receiving satisfactory printing services of NCWM material. Since some of this material is of a legal nature, notably NBS Handbook 44 and the various model State laws and regulations, and becomes legally effective on a given date, dependable completion and distribution of NCWM material is essential to both the States and industry. Therefore, the committee recommends adoption of the following statement of policy:

NCWM Printed Material

All amendments and changes to NBS Handbook 44, "Specifications, Tolerances, and Other Technical Requirements for Commercial Weighing and Measuring Devices," resulting from actions of the National Conference on Weights and Measures during its annual meeting shall be edited and made available on request in draft form 45 days after the Conference annual meeting. Printed replacement sheets of such amendments and changes to Handbook 44 shall be distributed within 105 days of the Conference.

New or amended model state laws and regulations shall be edited, printed, and distributed in accordance with the preceding schedule for Handbook 44.

The NCWM requests that the National Bureau of Standards, Department of Commerce, and U.S. Government Printing Office give their full cooperation and assistance in the expeditious processing of all Conference printing orders because of the importance of this material to State and local weights and measures agencies, businesses, and industries throughout the U.S.

4. NBS Technical Services

The work of the Committee on Specifications and Tolerances in proposing device specifications, tolerances, and other technical

requirements for adoption by the Conference has been supplemented over the years by two related programs of the NBS Office of Weights and Measures (OWM). Both the prototype examination of devices and the publication of examination guidelines (manuals and Examination Procedure Outlines) by OWM have materially contributed to achieving uniformity of interpretation and application of NBS Handbook 44 requirements among the various State and local jurisdictions. In addition, it is recognized that the prototype activity has been of substantial benefit to manufacturers wishing to introduce new lines of models of equipment.

The committee believes strongly in the value of these two related programs to the Conference member jurisdictions and commerce generally. With the support of the Conference, it believes these programs can and should be strengthened. With this purpose in mind, the committee recommends the Conference adopt the following policy statements as guidelines to the National Bureau of Standards in its administration of these programs.

NBS Prototype Examination Program

The National Conference on Weights and Measures recognizes and encourages this NBS program as an activity essential to State and local weights and measures jurisdictions and device and equipment manufacturers. The examination service should be available to all manufacturers, both domestic and foreign, of metrological equipment on an equal and timely basis. Reports of devices examined which meet applicable requirements should be prepared and sent to the device submitter and each State and other primary jurisdiction within 60 days following completion of the examination. The submitter of a non-conforming device may be granted reasonable time for correcting noncomplying conditions.

NBS Examination Procedure Outlines

The National Conference on Weights and Measures strongly endorses the publication by NBS of both "Examination Procedure Outlines" (a series in Handbook 112) and individual "Examination Manuals" (Handbooks 98, 99, 117, etc.) as valued assistance to State and local weights and measures officials in conducting correct and uniform examinations of weighing and measuring devices.

Such manuals or procedure outlines as appropriate should be initially developed concurrently with the drafting of any new Handbook 44 (or equivalent) device code. Publication of a new Examination Procedure Outline or manual should then coincide

with the first issuance of a new device code following adoption by the Conference. Examination manuals and procedure outlines should be revised and updated as necessary and particularly whenever significant changes occur in either the basic device code(s) or in the technology of the regulatory standards and equipment used by the weights and measures official.

5. Communications

Although the committee has not had sufficient time to develop its recommendations and policy statements for improving communications in NCWM, particularly with respect to input to the Conference committees, it requests all weights and measures officials and industry representatives to make special effort to improve their communications on NCWM matters whenever possible. Incomplete and delayed correspondence, data, and reports may lead to inadequate and perhaps even improper handling of Conference workload and decision making. This item will continue to be carried on the committee's agenda. Comments and suggestions are solicited.

(The foregoing item was adopted by majority vote.)

COORDINATION

During its deliberations at NBS in January, the committee initiated the coordination of and participated in discussion on several matters that were of interest to more than one of the other standing committees. These matters are covered in detail in the tentative reports of other committees and include:

- (a) Unit Prices on Electronic Computing Scales and Delicatessen Practices of Sale by the $\frac{1}{4}$, $\frac{1}{2}$, or Other Fractions of Weight. (S & T and L & R Committees)
- (b) NCWM Support for State of California Petition in the Supreme Court of the United States for Issuance of a Writ of Certiorari for Review of the Decisions of the United States Court of Appeals for the Ninth Circuit in *Rath v. Becker* and *General Mills v. Jones*. (All committees)
- (c) Report on Status of Activity by U.S. Authorities in the Work of the International Organization of Legal Metrology. (All committees)

SUMMARY

As in any new undertaking, this committee recognizes that there will need to be changes and additions in its scope and operations to deal most effectively with its assigned responsibilities. This will be done as circumstances require. However, the members of this tentative committee are in complete support with the official establishment of a Committee on National Measurement Policy and Coordination. We know that it has already been of valuable assistance in the overall workings of the standing committees; and we trust that you will see the benefit of its activity during the Conference.

Many comments and suggestions have been received and all will be considered. We solicit others that would be helpful in the committee's deliberations to improve communications.

S. D. ANDREWS, *Chairman*

R. L. THOMPSON, NCWM Chairman

K. J. SIMILA, Chairman, S & T
Committee

C. H. VINCENT, Chairman, L & R
Committee

E. H. STADOLNIK, Chairman,
Liaison Committee

R. T. WILLIAMS, Chairman,
Education Committee

J. F. LYLES, Representative, OIML

H. F. WOLLIN, *Exec. Secy.*, NCWM

Committee on National
Measurement Policy and
Coordination

(On motion of the committee chairman, the report of the Committee on National Measurement Policy and Coordination was adopted in its entirety by the Conference by majority vote. The Conference also authorized the executive secretary to make any editorial changes in the language adopted by the Conference.)

REPORT OF THE COMMITTEE ON LIAISON WITH THE FEDERAL GOVERNMENT

Presented by E. H. STADOLNIK, *Chairman*, Head Administrative Assistant for Division of Standards, Executive Office of Consumer Affairs, Boston, Mass.

(Thursday, July 15, 1976)



The Committee on Liaison with the Federal Government submits its report to the 61st National Conference on Weights and Measures. The report consists of the tentative report as offered in the Conference Announcement and as amended by the final report.

The report represents recommendations of the committee formed on the basis of careful analysis of the interim meeting discussion and on the basis of written comments received during the year and oral presentations made during the open meeting of the committee. The committee intends to expand its communications with the Federal Government and to advocate the NCWM's interests.

WEIGHTS AND MEASURES PROGRAMS IN FEDERAL ESTABLISHMENTS

1. Military Installation Commissaries

Requests have been made by some of the States for an improved procedure for reporting violations at military installation commissaries. The main complaint was that in some cases no action was being taken by the commissary managers or base commanders. The weights and measures members of the committee and Mr. James Lyles (Virginia) met with Lt. Colonel Sanford Hertz, Office of the Assistant Secretary for Defense, Manpower and Reserve Affairs (M&RA), and the current program was reviewed and the pitfalls and problems of that program explored. Colonel Hertz outlined to the committee members the reorganization of military commissaries management that will be taking place this year in the Department of Defense (DOD). The reorganization will provide for a centralized management system which will provide clearer lines of responsibility with regard to weights and measures activities at commissary installations. Regional offices will have operational control and a national headquarters office will have overall control of the entire system.

The Army expects to have its reorganization completed by the end of October and will supply the committee with a complete address list of regional offices and headquarters offices to be contacted in the violation reporting procedure as discussed later in this report. The Air Force also expects to have its reorganization completed by the end of October of this year. The Navy has its Commissary Program organized along lines similar to the new Army and Air Force programs, except that the regions are smaller and there are many more of them. The Marine Corps has only 13

commissaries, and they are all under the direction of a headquarters office. Commissary organization plans of the various services will be published in the Tech Memo as they become available.

The DOD again indicated that it welcomed the presence of weights and measures officials at its military installations for the purpose of monitoring the accuracy of weighing and measuring devices and the inspection of prepackaged commodities. They indicated not only that these inspections provide essential protection to all buyers of commodities, but also that such inspections were of great value to the efficient operation of these commissary systems. Information will be recirculated by Colonel Hertz to all military services regarding the cooperative program on weights and measures inspections. Colonel Hertz suggested the following approach be used by weights and measures officials to extend package and device inspections to military commissaries.

- (1) Contact base commander and commissary manager and offer the service (as per 1970 and 1971 Reports of Committee on Liaison with the Federal Government).
- (2) Agree with base commander and commissary manager on the scope of weights and measures activity to be conducted. Refer to military regulations and directives from Office of Assistant Secretary of Defense if necessary to encourage cooperation. If any weights and measures official encounters problems of entry into a military installation, he should direct a communication to Lt. Colonel Hertz [Office of the Assistant Secretary of Defense (M&RA) Room 2B 279, Pentagon, Washington, D.C. 20301] and any required clearance will be provided.
- (3) Colonel Hertz emphasized that the services do not like the use of the phrase "Ordered Off Sale" since this raises the issue of jurisdictional conflict with military officials. The committee suggests that the phraseology "requested or recommended removal from sale" be substituted in lieu of this expression.

The following procedure should be followed with military commissaries in which the reorganization plans have not as yet been consummated. (1) Report violations to commissary manager and send a letter with the report of violations to the base commander with a copy to Colonel Hertz. (2) If the violations are not corrected or are repeated, send a letter of complaint along with the report of

violations to Colonel Hertz with a copy to the base commander and the Office of Weights and Measures (OWM) (Attn: Military Inspection, Office of Weights and Measures, National Bureau of Standards, Washington, D.C. 20234).

The procedure to be followed where a reorganization plan has been put into effect (such as the naval commissary program) is as follows: (1) Send a report of the violation to the regional commissary office. (2) If the violations are not corrected or are repeated, send a report of violation to the headquarters office with a copy to the regional commissary office. (3) If violations persist, send a letter of complaint and report of all violations to Colonel Hertz with copies to OWM, the headquarters office, and the regional commissary office. In either case, do not send reports with "no" violations since this only clouds the issue and generates a lot of unnecessary paperwork.

The DOD indicated that it was most anxious to resume training efforts that are offered by the OWM to be used as a fundamental tool in the management of its commissary stores. Contacts for training programs with the various services were provided to OWM. Therefore, the Liaison Committee recommends the development of cooperative training activities with the various commissary programs in cooperation with weights and measures jurisdictions and OWM. Colonel Hertz also said that he would investigate the possibility of DOD financing weights and measures assistance in commissary training programs.

(The foregoing item was adopted by majority vote.)

2. U.S. Post Offices

Discussions were held with U.S. Postal Service representatives Messrs. Richard Thompson, Raymond Kennedy, and William Schoonover concerning the activities of the U.S. Postal Service in weights and measures inspection. The officials recognized the necessity of providing accurate weight determinations to the consuming public as well as the necessity of accurate weight in the Postal Service accounting and operations. They stated that they have developed a tentative draft of a proposed manual on inspection, testing and servicing that includes portions of Handbook 44. The Liaison Committee, at the request of the Postal Service representatives, agreed to review the draft of the proposed handbook. However, review of the handbook has been turned over to the Committee on Specifications and Tolerances which has the

responsibility in this area. It has been working with Postal Service representatives on the proposed handbook and other training material and will report on the status of these activities. The Postal Service representatives also stated that they depend upon the weights and measures jurisdictions for the calibration of their field standards and test equipment.

An interest was expressed in having State and local weights and measures officials check Postal Service weighing and measuring devices. However, the committee felt this was dependent on the priorities and budgetary limitations of the individual jurisdictions. It was suggested that post offices which needed assistance in checking their equipment contact the appropriate weights and measures jurisdictions to determine if they could be of some assistance. The postal representatives stated that a summary of inspection results in jurisdictions where testing is being done would be of value to them.

The committee feels that in view of budgetary constraints within State and local weights and measures jurisdictions and the large number of postal scales in use throughout the country (100,000 estimated), it would be more logical to help the Postal Service help itself. The Postal Service now has a program of internal maintenance and repair of its scales. As a result of the interim meeting, a clear decision was made by the Postal Service that the program in testing, sealing, and maintaining postal scales should be conducted entirely in-house. However, the Postal Service officials welcomed, and the Liaison Committee endorsed, assistance from OWM and weights and measures jurisdictions in training the inspectors, the service people, and other designated Postal Service personnel in testing and operation of weighing devices as specified in Handbook 44. The committee encouraged them to make use of the OWM prototype examination program, particularly with respect to new weighing devices.

(The foregoing item was adopted by majority vote.)

UNIFORM PACKAGING REGULATIONS

Representatives of Federal regulatory agencies participated in a discussion with the committee concerning the development of uniformity in packaging regulations among the Federal, State and local agencies. Participating in this discussion were Mr. John McKelvey and Dr. William Dubbert of U.S. Department of Agriculture (USDA)-Animal Plant Health Inspection Services (APHIS),

Mr. Earl Johnson of the Federal Trade Commission (FTC) and Mr. Steve Butler of the Food and Drug Administration (FDA). It was felt that uniformity in the following regulations would eliminate some of the problems that have been encountered in court decisions:

Model State Packaging and Labeling Regulation

12.1.1. Variations from Declared Net Quantity.—Variations from the declared net weight, measure, or count shall be permitted when caused by unavoidable deviations in weighing, measuring, or counting the contents of individual packages that occur in good packaging practice, but such variations shall not be permitted to such extent that the average of the quantities in the packages of a particular commodity, or a lot of the commodity that is kept, offered, or exposed for sale, or sold, is below the quantity stated, and no unreasonable shortage in any package shall be permitted, even though overages in other packages in the same shipment, delivery, or lot compensate for such shortage. Variations above the declared quantity shall not be unreasonably large.

12.1.2. Variations Resulting from Exposure.—Variations from the declared weight or measure shall be permitted when caused by ordinary and customary exposure to conditions that normally occur in good distribution practice and that unavoidably result in change of weight or measure, but only after the commodity is introduced into intrastate commerce: *Provided*, That the phrase “introduced into intrastate commerce” as used in this paragraph shall be construed to define the time and the place at which the first sale and delivery of a package is made within the state, the delivery being either

- (a) directly to the purchaser or to his agent, or
- (b) to a common carrier for shipment to the purchaser, and this paragraph shall be construed as requiring that, so long as a shipment, delivery, or lot of packages of a particular commodity remains in the possession or under the control of the packager or the person who introduces the package into intrastate commerce, exposure variations shall not be permitted.

FOOD AND DRUG ADMINISTRATION

Title 21 CFR

Chapter 1, Section 1.8b Paragraph g (Aerosols)

(g) The declaration shall accurately reveal the quantity of food in the package exclusive of wrappers and other material packed therewith; provided that in the case of foods packed in containers designed to deliver the food under pressure, the declaration shall state the net quantity of the contents that will be expelled when the instructions for use as shown on the container are followed. The propellant is included in the net quantity declaration.

Paragraph q (Foods)

(q) The declaration of net quantity of contents shall express an accurate statement of the quantity of contents of the package. Reasonable variations caused by loss or gain of moisture during the course of good distribution practice or by unavoidable deviations in good manufacturing practice will be recognized. Variations from stated quantity of contents shall not be unreasonably large.

Section 1.102c Paragraph g (Drugs)

(g) The declaration of net quantity of contents shall express an accurate statement of the quantity of contents of the package. Reasonable variations caused by loss or gain of moisture during the course of good distribution practice or by unavoidable deviations in good manufacturing practice will be recognized. Variations from stated quantity of contents shall not be unreasonably large. In the case of a liquid drug in ampules or vials, intended for injection, the declaration shall be considered to express the minimum quantity and the variation above the stated measure shall comply with the excess volume prescribed by the National Formulary or the U.S. Pharmacopeia for filling of ampules. In the case of a solid drug in ampules or vials, the declaration shall be considered to express the accurate net weight. Variations shall comply with the limitations provided in the U.S. Pharmacopeia or the National Formulary.

Section 701.13 Paragraph s (Cosmetics)

(s) The declaration of net quantity of contents shall express an accurate statement of the quantity of contents of the package. Reasonable variations caused by loss or gain of moisture during the course of good distribution practice or by unavoidable deviations in good manufacturing practice will be recognized. Variations from stated quantity of contents shall not be unreasonably large.

UNITED STATES DEPARTMENT OF AGRICULTURE ANIMAL AND PLANT HEALTH INSPECTION SERVICES

Title 9 CFR

Chapter 3, Section 317.2. Paragraph h

(h)(1) The statement of net quantity of contents shall appear on the principal display panel of all containers to be sold at retail intact, in conspicuous and easily legible boldface print or type in distinct contrast to other matter on the package and shall be declared in accordance with the provisions of subparagraphs (2) through (10) this paragraph.

(2) The statement as it is shown on a label shall not be false or misleading and shall express an accurate statement of the quantity of contents of the container exclusive of wrappers and packing substances. Reasonable variations caused by loss or gain of moisture during the course of good distribution practices or by unavoidable deviations in good manufacturing practice will be

recognized. Variations from stated quantity of contents shall not be unreasonably large.

FEDERAL TRADE COMMISSION
Title 16 CFR
Chapter 1, Section 500.22

Net Quantity, Average Quantity
Permitted Variations

(a) The statement of net quantity of contents shall accurately reveal the quantity of the commodity in the container exclusive of wrappers and other material packed therewith: *Provided*, That in the case of a commodity packed in a container designed to deliver the commodity under pressure, the statement shall declare the net quantity of the contents that will be expelled when the instructions for use are followed. The propellant is included in the net quantity statement.

(b) Variations from the stated weight or measure shall be permitted when caused by ordinary and customary exposure, after the commodity is introduced into interstate commerce, to conditions which normally occur in good distribution practice and which unavoidably result in change of weight or measure.

(c) Variations from the stated weight, measure or numerical count shall be permitted when caused by unavoidable deviations in weighing, measuring, or counting the contents of individual packages which occur in good packaging practice: *Provided*, That such variations shall not be permitted to such extent that the average of the quantities in the packages comprising a shipment or other delivery of the commodity is below the quantity stated, and no unreasonable shortage in any package will be permitted, even though overages in other packages in the same shipment or delivery compensate for such shortage. Variations from stated quantity of contents shall not be unreasonably large.

It should be noted that the FDA and USDA regulations do not include specific reference to sampling or averaging the results of the test on a sample.

USDA representatives indicated that the agency plans to prepare new net weight regulations which will provide for sampling and averaging. An important feature to be included is a requirement for net weight at point of inspection.

While FDA regulations do not specify actual procedures used by their inspectors, these procedures actually include lot sampling and sample averaging. Variations are permitted which allow the sample average to fall as much as 1 percent below the labeled weight.

The FTC representative indicated their regulations and procedures are in conformity with the Model Packaging and Labeling Regulation.

A Net Weight Policy Committee composed of representatives of the National Bureau of Standards (NBS), FDA, FTC, and USDA has been conducting negotiations to develop uniformity in net weight policies among the Federal agencies. It is recommended that the NBS representatives on this committee receive full endorsement and support from the Conference. The Liaison Committee also requests the Conference secretary to prepare letters to USDA-APHIS and FDA requesting support of the Net Weight Policy Committee negotiations and the decisions of that committee and that these agencies refrain from any unilateral action.

Handbook 67 (Revised) was discussed in several committees during the interim meetings. The Liaison Committee wishes to congratulate OWM and NBS personnel (especially Dr. Carroll Brickenkamp) for undertaking and carrying forward this momentous and monumental effort.

(The foregoing item was adopted by majority vote.)

REEVALUATION OF COMMITTEE MISSION

The following recommendations are made as a result of a reevaluation of the mission of the committee.

1. The committee believes that its name should be changed to the Committee on Liaison to reflect areas of interest that extend beyond interaction with the Federal Government. It is recommended that the Executive Committee approve this change and offer it as a proposal to amend the Conference Organization and Procedures.

2. The Committee on Liaison will continue to function in its role of coordination with all Federal agencies in matters relating to weights and measures activities.

3. The Committee on Liaison shall also act to formulate and recommend policy options for implementation to the National Measurement Policy and Coordinating Committee (P&C) relative to future appointments and administrative actions in coordination with the International Organization of Legal Metrology, the U.S. Metric Conversion Board, the American National Metric Council, the American National Standards Institute and others as appropriate.

4. The Committee on Liaison shall receive and take under consideration input data, requests, or other types of information on matters that may not be directly related to other standing committees.

(The foregoing item was adopted by majority vote.)

E. H. STADOLNIK, *Chairman*,
Massachusetts
C. G. GEHRINGER, *Pennsylvania*
Scale Company
C. H. GREENE, *New Mexico*
W. N. SEWARD, *American*
Petroleum Institute
J. F. SPEER, *Milk Industry*
Foundation
S. HASKO, *Staff Assistant*, NBS
H. F. WOLLIN, *Exec. Secy.*, NCWM

Committee on Liaison with the
Federal Government

(On motion of the committee chairman, the report of the Committee on Liaison with the Federal Government was adopted in its entirety by the Conference by majority vote. The Conference also authorized the executive secretary to make any appropriate editorial changes in the language adopted by the Conference.)

REPORT OF THE COMMITTEE ON LAWS AND REGULATIONS

Presented by C. H. VINCENT, *Chairman*; Director, Department of
Consumer Affairs, City of Dallas, Texas

(Thursday, July 15, 1976)



The Committee on Laws and Regulations submits its final report to the 61st National Conference on Weights and Measures. The report consists of the tentative report as offered in the Conference Announcement and as amended by the final report.

The report represents recommendations of the committee that have been formed on the basis of written and oral comments received during the year and oral presentations made during the open meeting of the committee.

METRIC CONVERSION

1. NCWM Metric Guidelines and Interpretations

Federal Trade Commission (FTC) officials suggested that a compilation of the method of sale of commodities not under

Federal jurisdiction is badly needed and they also felt that major NCWM labeling interpretations should be listed for reference. The State of Colorado stated that we will always have trouble spelling out what is sold by weight, sold by measure, and sold by count until we have the impossible—specific methods of sale of all 1700 various types of commodities.

These needs have not gone unnoticed by either the Committee on Laws and Regulations or the OWM staff. However, the committee believes that with metric conversion upon us, we must take advantage of the opportunity presented by metric conversion and begin to document, collect, and periodically revise the NCWM metric method of sale and labeling interpretations.

The committee does not believe that customary system interpretations should be catalogued. Resources should be concentrated on providing guidelines for the present and for the future. The committee also recognizes, of course, that many interpretations that could be listed are really independent of either measurement system. For example, sales by count and questions of tare.

In its discussions, the committee recognized that most interpretations do not require a regulation since there is no controversy. Generally, all interested parties can agree on one uniform method and the voluntary system would be as effective as a mandatory system without the problems and constraints associated with the latter. Where established guidelines are not followed, NCWM will make necessary revisions to the Model State Method of Sale of Commodities Regulation.

The committee recognized that several items which were before NCWM this year are in this category and should become part of the suggested forthcoming publication.

The committee believes that methods of sale for the following items should be listed therein:

Onion sets and other types of garden bulbs shall be sold by count when packaged and may be sold by count or weight when not in package form.

Sea shells shall be sold by count and weight for packages of 50 sea shells or less and by volume and weight for packages containing more than 50 sea shells. Units of the metric system shall be used exclusively.

Tire tread rubber products shall be sold by net weight. The polyethylene film protective backing shall be part of the product and included in the net weight. The core is part of the tare and must be deducted from the gross weight to determine the net weight.

After lengthy discussion, the committee decided to table the guidelines for onion sets for further consideration at the 1977 Conference and to drop the last sentence of the sea shell guideline.

(The foregoing item as amended was adopted by majority vote)

HANDBOOK 67 CHECKING PREPACKAGED COMMODITIES

1. Handbook 67 (Revised)

The executive secretary asked the Committee on Laws and Regulations to conduct hearings and receive testimony from interested persons as to a number of issues directly and indirectly related to the Office of Weights and Measures' effort to revise Handbook 67 (draft copies may be obtained by writing to OWM). It was felt that certain unresolved issues could become barriers to further progress and that an open forum should be provided for those who sought to present explanations and data to support their objections to, what they perceived to be, the direction that the task force to revise Handbook 67 was taking. The following issues suggested by the Handbook 67 task force were discussed in an open session:

- Lot Averaging
- Inspection Lots
- Sampling Plans
- Tare
- Model Law Enabling Provisions (Section 5.13.)
- Package and Labeling Enabling Provisions (Section 12.)
- Moisture Variations
- Maximum Allowable Variations

Information concerning these issues was received by the task force and is being given full consideration. The committee, however, reviewed those comments which relate to the last four issues.

The Committee on Laws and Regulations considered the following proposal to amend the Model Law:

5.13. Weigh, measure, or inspect packaged commodities kept, offered, or exposed for sale, sold, or in the process of delivery, to determine whether they contain the amounts represented and whether they are kept, offered, or exposed for sale in accordance with this Act or regulations promulgated pursuant thereto. In carrying out the provisions of this section, the director shall employ recognized sampling procedures, as approved by the National Conference on Weights and Measures and published in National Bureau of Standards Handbook 67, and supplements thereto or revisions thereof.

The Committee on Laws and Regulations agrees with the suggested revision to the Model Law since the final determination of any State weights and measures regulations should be, as is done with Handbook 44, "Specifications, Tolerances, and Other Technical Requirements for Commercial Weighing and Measuring Devices," under the control of the State weights and measures officials. The committee recommends, however, that this change be tabled until such time as OWM is able to present to NCWM in final form a draft of Handbook 67 (Revised).

Again this year, the committee was asked to consider the elimination of Section 12.1.2. of the Model State Packaging and Labeling Regulation or to consider combining Sections 12.1.1. and 12.1.2. so as to correct the enforcement problems associated with permitting variations from the declared weight or measure when caused by ordinary and customary exposure to conditions that normally occur in good distribution practice. After careful consideration, the Committee on Laws and Regulations made the following findings as amended by the Conference.

The committee recognizes the complexity of the many issues involved in processing, packaging and merchandising of hygroscopic commodities. However, since these issues, especially as they relate to net weight enforcement, are not now resolved, the committee recommends against revision of 12.1.1. and 12.1.2. at this time.

The committee also recommends that Section 12.2. be revised as follows:

12.2. Magnitude of Permitted Variations.—The magnitude of variations permitted under Sections 12., 12.1., 12.1.1., and 12.1.2. of this regulation shall be those contained in the procedures and tables of Handbook 67.

(The foregoing item was adopted by majority vote)

2. Rath v. Becker and General Mills v. Jones

The following letter spells out the action that was taken by the Conference Chairman with the approval of the Executive Committee and is presented here for ratification by the 61st NCWM.

MEMORANDUM FOR State Weights and Measures Officials

From: Richard L. Thompson

Chairman, National Conference on Weights and Measures

Subject: Rath v. Becker and General Mills v. Jones

The National Conference on Weights and Measures (NCWM) requests and encourages your state to support California's petition in the Supreme Court of the United States for issuance of a Writ of Certiorari for review of the

decisions of the United States Court of Appeals for the Ninth Circuit (in Rath v. Becker and General Mills v. Jones). This request is made because NCWM believes that the Ninth Circuit decisions could have an adverse affect on the marketplace rights of consumers in your state and that important questions remain unanswered.

We ask that you urge your Attorney General to take the following action before February 12, 1976.

1. Join with California in General Mills v. Jones by phoning Allan J. Goodman, Assistant Attorney General (213-620-3864) and indicating that your state wishes to become a party in their amicus curiae in support of their petition,

—and—

2. (a) Join with Michigan in Rath v. Becker by phoning Edwin M. Bladen, Assistant Attorney General (517-373-1152)

—or—

(b) Join with Nebraska in Rath v. Becker by phoning Ralph Gillan, Assistant Attorney General (402-471-2682) and indicating that your state wishes to become a party.

This action was initiated by weights and measures officials, attending the Interim Meetings held the week of January 26 to January 30, at the request of California officials. Walter Watson, Chief, Division of Measurement Standards and Herbert L. Cohen, Administrative Adviser, Department of Food and Agriculture, sought to enlist the support of NCWM in California's efforts to encourage all states to consider (1) joining California in their amicus brief in General Mills, and (2) joining with Michigan or Nebraska in their amicus curiae brief in the Rath Case. They further stated that "your participation in this manner will materially assist in our effort to re-establish the authority of the states to enact and enforce laws."

A strong consensus developed among officials present that NCWM should lend its support. Even though the Ninth Circuit decisions dealt with California regulations, some felt that basic Handbook 67 principles such as the "average concept" are in jeopardy; and California indicated that every state with sampling procedures or reasonable variations tables has an interest. NCWM, therefore, believes that this controversy is of significant national importance and should be reviewed by the highest court in the land. Based on this consensus, the NCWM itself will join with California and Michigan in their amici curiae briefs.

I have contacted members of the NCWM Executive Committee and, subject to the committee's authority to act for the conference in emergency situations in the interval between successive meetings of the conference, obtained the committee's approval to take this action. Additionally, I will request that this action be ratified by the 61st National Conference on Weights and Measures this coming July.

cc: Allan J. Goodman
Edwin M. Bladen
Ralph Gillan
NCWM Executive Committee

(The foregoing action was adopted by majority vote)

MODEL STATE WEIGHTS AND MEASURES LAW

1. In-Plant Inspection

The Western States Weights and Measures Association (WSW&MA) has discussed in-plant inspection of nonhygroscopic products for net content compliance on several occasions. It has been suggested that if these commodities were adequately surveyed within the originating jurisdiction, such inspections could eliminate the need for all jurisdictions to continuously monitor at point of sale certain commodities. The benefits could include reduced costs of inspection with no loss in consumer protection and the released time could be reallocated to other areas of need within the receiving jurisdiction. If all jurisdictions could participate in such a program, the benefits would be mutual and commonly shared.

There are obvious problems in implementing a program of in-plant inspections so that accurate net content is assured in all receiving jurisdictions while not imposing unreasonable burdens in manpower requirements on originating jurisdictions. There is some feeling that these problems can be overcome, and it was recommended that the Western State Weights and Measures Association take steps to initiate such a program and encourage all member jurisdictions to develop in-plant inspections of nonhygroscopic commodities.

To help foster the implementation of in-plant inspection programs, it was requested that at least five members volunteer to participate in the next 12 months. (The jurisdictions which have volunteered are Hawaii, New Mexico, California, Arizona, and Colorado.) These jurisdictions would be expected to select a limited number of products manufactured and packaged within their jurisdictional boundaries, initiate an in-plant inspection program, and report the results to other participating jurisdictions. A summary of the results of this program will be expected at the next annual meeting of the Association.

Industry representatives and the Committee on Laws and Regulations feel that this experiment should be given priority and ask NCWM and OWM to lend its support. It is recommended that progress reports be made available to the Conference on an annual basis each January.

(The foregoing item was adopted by majority vote)

2. Organization of State Weights and Measures Functions

The Western States Weights and Measures Association noted that there have been extensive revisions of the Model Weights and

Measures Law in recent years, resulting in substantial improvement in language and applicability within the various jurisdictions. The WSW&MA commends NCWM and OWM on this effort; however WSW&MA stated that as a result of the revisions, there is no longer a section in the Model Law which specifically deals with the organization of the agency, bureau, division, or department responsible for weights and measures enforcement within a jurisdiction. WSW&MA feels this lack is detrimental to the status of State weights and measures offices and, therefore, recommended that such a section be included in the Model Law. Section 6 in the 1970 version formerly served this purpose.

The Committee on Laws and Regulations of NCWM recommends for consideration and adoption the following new section and appropriate renumbering of existing sections:

SECTION X. STATES WEIGHTS AND MEASURES DIVISION; FUNCTIONS; PERSONNEL.—There shall be a State Division of Weights and Measures located for administrative purposes within the Department of (agency, etc) . The Division is charged with, but not limited to, performing the following functions on behalf of the citizens of the State:

(1) Assuring that weights and measures in commercial service within the State are suitable for their intended use, properly installed, accurate and are so maintained by their owner or user.

(2) Preventing unfair or deceptive dealing by weight or measure in any commodity or service advertised, packaged, sold or purchased within this State.

(3) Making available to all users of physical standards or weighing and measuring equipment the precision calibration and related metrological certification capabilities of the weights and measures facilities of the Division.

(4) Promoting uniformity, to the extent such conformance is practicable and desirable, between weights and measures requirements of this State and those of other States and Federal agencies.

(5) Encouraging desirable economic growth while protecting the consumer through the adoption by rule of weights and measures requirements as necessary to ensure equity among buyers and sellers.

There shall be a State director of Weights and Measures who shall administer the activities of the Division. The Division shall be comprised of such supervisory, technical (including inspectors and specialists), and clerical personnel as necessary to accomplish its assigned responsibilities. The director shall be allowed for salaries for himself and Division supervisory, technical and

clerical personnel, for necessary facilities, standards, equipment and supplies, and for traveling and contingent expenses, such sums as shall be appropriated by the legislature.

(The foregoing item was adopted by majority vote)

3. Item Pricing on Packages

In keeping with the administrations interest in securing greater consumer involvement and because of the committee's responsibility to analyze consumer protection bills within the weights and measures area, the Committee on Laws and Regulations discussed item pricing on packages along with several other consumer issues. These issues stem from proposed legislation plus the numerous submissions received this year from many sources. A positive effort has been made to bring to the attention of private consumer agencies those issues which the committee believes are appropriate.

Consumer organizations are generally in support of the suggestion that they provide consumer input and otherwise assist the committee to modify the model regulations. However they need funds to support their involvement, including funds for studies, reports, and travel to our meetings. This year they expressed interest in only two items. The National Consumers Congress expressed its interest in supporting our efforts to metricate the model regulations, and the Consumer Federation of America (CFA) asked that NCWM join in the effort to keep item prices on packages.

CFA stated that price information is the most basic and essential consumer information; consumers are unwilling to forsake this important information. They set forth the following reasons why price marking of individual items is so vital to the consumers of this country:

1. Visible pricing contributes to price consciousness and awareness which has a dampening effect on inflation.
2. It is an important instrument of comparison shopping.
3. It provides a defense against instantaneous price changes.
4. There is no insurance that the shelf tag will be accurate or that it will correspond to the intended product.
5. It is a tool to verify the accuracy of the prices you pay.

6. It is easily used by consumers and provides them with readily available information during the shopping trip, at the check-out counter, and when they are home budgeting and meal planning.

National Association of Food Chains officials have argued that there is no concerted move to eliminate prices from packages. The practice is currently in a test stage, and it would be premature and probably unnecessary for weights and measures officials to attempt to regulate in this area at the present time.

The committee believes that changes to the model regulations would be premature but recommends that the Conference take a strong stand against any practice which would diminish in any way the consumers right to pricing information.

(The foregoing item was adopted by majority vote)

MODEL STATE METHOD OF SALE OF COMMODITIES REGULATION

1. Renumbering of Nonfood Products and General Sections

To accommodate this year's changes as well as future changes to the Model State Method of Sale of Commodities Regulation, the committee believes that all sections under Nonfood Products (Section 9-13) and General (Sections 14-21) should be renumbered so both of these categories will begin with a numbering system identical to that in Food Products. The committee therefore recommends that full discretion be granted to the executive secretary in the renumbering of this model.

(The foregoing item was adopted by majority vote)

Food

1. Delicatessen Practices of Sale by the $\frac{1}{4}$ lb or $\frac{1}{2}$ lb

Last year the 60th National Conference on Weights and Measures decided to amend Section S.1.6.3. of Handbook 44 to prohibit the capability of certain computing scales to compute, display and record unit prices on any basis other than per the whole pound.

This year the State of Maryland, reacting to numerous inquiries from weights and measures officials, submitted to the Committee on Laws and Regulations a proposal to clarify the Model State Method of Sale of Commodities Regulation in order to avoid confusion in the marketplace, provide for the orderly changeover

to the use of metric units, and to make its interpretation coherent with the action taken by the 60th National Conference.

The committee's recommendation as amended by the Conference is to amend the Model State Method of Sale of Commodities by adding a new section to read as follows:

SECTION X. PRICING OF BULK FOOD COMMODITIES.—

Bulk food commodities or food commodities not in package form and sold by weight shall be priced in terms of whole units of weight and not in common or decimal fractions.

This change shall be effective on January 1, 1978. Additionally, the committee recommends that a change to the metric system of units be effectuated as soon as possible in the sale of bulk commodities.

After discussion in the final session, an amendment was made to change the effective date from January 1, 1978 to January 1, 1977.

(The foregoing item as amended was adopted by majority vote)

2. Cottage Cheese Sizes

The Committee on Laws and Regulations was asked to respond to inquiries as to its intent in drafting the "single serving" clause of Section 7. Other Milk Products which reads: "And *Provided* further, that multipack or single serving sizes of 6 ounces or less shall be sold only in even ounce increments." Two interpretations are possible. One would permit only sizes of 2, 4, or 6 ounces; the second would permit 1, 2, 3, 4, 5, or 6 ounce packages.

The committee believes the latter to be reasonable and, to avoid any ambiguity, recommends for consideration and adoption the following amendment to the above statement from Section 7. Other Milk Products:

And *Provided* further, that multipack or single serving sizes of 6 ounces or less shall be sold only in whole ounce increments.

(The foregoing item was adopted by majority vote)

3. Generic Terms for Meat Cuts

The State of Maryland petitioned NCWM to lend its support to the establishment of a uniform national method of sale of commodity regulation which will require uniformity in names of meat cuts and eliminate the many fanciful names used in the labeling of

meat cuts. The committee agrees that generic terms should be used and believes that the Uniform Retail Meat Identity Standards developed by the Industrywide Cooperative Meat Identification Standards Committee, published and distributed by Department of Merchandising, National Live Stock and Meat Board, should be the basis for this effort. The Industrywide Cooperative Meat Identification Standards Committee made the following points in their introduction to the Uniform Retail Meat Identity Standards.

A uniform identification code is needed—one that industry can follow and consumers will understand. The consumer confusion now existing stems from the abundance and variety of meat cuts and the inconsistency of label identification. It is estimated that more than a thousand names are used to identify approximately 300 fresh cuts of beef, pork, lamb, and veal that are offered for sale.

Labeling with fanciful names also adds to consumer confusion. Fanciful names are just descriptive terms and are not helpful in the identification of meat cuts. Although this type of identification is not recommended, there are some exceptions. Correct identification would still appear on the regular price-cut label.

Laws and ordinances aimed to correct the situation have done little to develop a system of meat identification. The objective of the Uniform Retail Meat Identity Standards is to reduce and, if possible, to eliminate consumer confusion. Also the Uniform Retail Meat Identity Standards would be adaptable to the oncoming Universal Product Code.

The committee agrees and recommends for consideration and adoption the following addition to the Model State Method of Sale of Commodities Regulation:

SECTION X.—A declaration of identity for meat cuts shall be limited to generic terms, such as those listed in the Uniform Retail Meat Identity Standards.

The following abbreviations may be used:

BAR B Q	Barbecue	POT-RST	Pot-Roast
BI	Bone In	RND	Round
BNLS	Boneless	RST	Roast
DBLE	Double	SHLDR	Shoulder
LGE	Large	SQ	Square
N.Y. (NY)	New York	STK	Steak
PK	Pork	TRMD	Trimmed

(The foregoing item was adopted by majority vote)

4. Instant/Concentrated Products

The County of Ventura, California, stated their belief that the main purpose of quantity statements is to facilitate value comparisons. After surveying packages at a local supermarket, they found that some commodities have quantity statements which do not perform this function adequately. They stated that for certain products, such as instant coffee, tea, and cocoa, weight alone is not sufficient. A dual statement is needed. The declaration should state the weight and it should state the size and number of cups (e.g., makes 10 six-oz cups) that can be made from the contents. The obvious objection to this reform would center around the strength of the cup of coffee. But no manufacturer is going to give directions that will result in an extremely weak cup of product and stay in business.

The National Coffee Association of U.S.A., Inc. offered the following issues which it believes are responsive to this request:

1. The number of servings of instant coffee will depend upon the size of the cup involved and the taste of the individual consumer.
2. The size of a cup will vary widely, ranging from a small "demitasse" cup to a large coffee mug.
3. The taste of the individual consumer defies definition because it will vary as widely as the number of individuals considered. Market research shows many like it "strong and black" and others prefer it "mild and thin."
4. Any statement placed on a container of instant coffee which represents that the consumer will be able to obtain a specified number of servings would be arbitrary, confusing and, in a very real sense, deceptive.
5. In view of the foregoing, any such requirement that the number of servings be listed on a container of instant coffee would expose the manufacturer to complaints from consumers that it was engaging in an unfair and deceptive practice—a type of unwarranted exposure not in the public interest.

The committee believes that quantity declarations for instant/concentrated products would be more meaningful if the volume yield of total product quantity (when directions are followed) is included in the statement and shown on the principal display panel. The committee, however, has not had ample opportunity to hear from all industry representatives and, therefore, recommends that this issue be deferred until 1977.

(The foregoing item was passed by majority vote)

Nonfood

1. Actual Metric Sizes for Softwood Lumber

The New Jersey Lumber & Building Material Dealers Association, Inc. recommended that the states give consideration to the type of Lumber Law currently in effect in New Jersey. Additionally, the State of Maryland and others suggested that the move to metric would provide a real opportunity to completely eliminate use of nominal sizes, such as the 2 x 4 or the 1 x 8. The dimensions of these items are actually $1\frac{1}{2}$ x $3\frac{1}{2}$ and $\frac{3}{4}$ x $7\frac{1}{4}$ inches. The committee has been asked to strive to ensure that actual metric sizes will be used in quantity declarations when the industry goes metric.

The National Forest Products Association stated that the wood products industries have not yet undertaken to convert to the metric system; however, coordinated planning is underway in most segments of the industry. The Association also indicated that although they are still in the early stages of detailed planning and do not yet have comprehensive recommendations, they are pleased to report that the softwood lumber industry is in accord with the expressed sentiment to combine metric conversion with a change from the nominal size system to one based on net sizes. Additionally, their American National Metric Council committees—representative of manufacturers, wholesalers, retailers, builders, carpenters, and government agencies—are unanimous in desiring such a change.

The National Forest Products Association, therefore, urges that the Conference not take premature action at this time relative to metric sizes for softwood lumber. Mutual objectives can best be served by operating through existing channels which provide for careful study of the subject, leading to a comprehensive program for consideration by the Conference at a later date.

(The foregoing item was adopted by majority vote)

2. Combination Quantity Commodities

Last year, the committee's recommendations submitted to the National Conference on Weights and Measures to establish allowable differences for various combination quantity commodities were not approved. Many weights and measures officials had questions as to the need for, what they considered to be, such a wide range of tolerances and others felt that minus tolerances should not be established for any combination commodities.

Meetings were held during the year with committee members and industry representatives. Additionally, the Office of Weights and Measures Tech Memo No. 28, October 1975, questioned the current NCWM policy and sought the guidance of weights and measures officials as to the best course of action.

The committee found that the present policy of establishing allowable differences tolerances does not have sufficient support of NCWM membership. Proposed changes would create unnecessary economic loss. Metric conversion would have an additional and significant impact on the industries involved and could also provide an opportunity to establish appropriate rules for combination quantity declaration during the changeover.

The committee recommends that the current effort be abandoned and that NCWM work toward establishing a new policy which will eliminate minus tolerances on metric combination quantity commodities and permit industry to make their products without any limitation as to plus tolerances. This would mean, for example, that a one-litre bowl must contain one litre with no minus tolerance. It would also mean that there would be no limit on how large the item could be and still be labeled one litre.

Shortly after the interim meetings the Single Service Institute, on behalf of their member companies, stated that their proposal should be presented before the voting body of the National Conference on Weights and Measures. The committee agrees and, therefore, recommends for consideration and adoption of the following change to Section 16.5.:

16.5. Paper and Plastic Cups.—The allowable difference between actual and declared capacity shall be:

- (a) Plus or minus $\frac{1}{4}$ ounce for items of 5 ounce capacity or less;
- (b) Plus or minus 5 percent of the stated capacity for items over 5 ounce capacity.

(The foregoing item was adopted by majority vote)

3. Artificial Burning Logs

Last year at the 60th NCWM, a regulation was developed to require that all fireplace and stovewood be sold by volume.

The Federal Trade Commission still prefers, however, that compressed fireplace logs be sold by weight since a volume declaration might entice some manufacturers to market a less substantial product. Although, the committee noted with interest that one company recently complained to State weights and measures officials that their tests indicate that several brands sold in grocery, drug, discount, and other related outlets had a significant percentage of underweight logs.

The committee believes that uniformity between Federal guidelines and State regulations is necessary to avoid unnecessary complications for packagers and consumers and, therefore, recommends that the following sentence be added to Section 18.3. Quantity:

A single log shall be sold by weight, and packages of such individual logs containing less than 4 cubic feet ($1/32$ cord) may be sold by net weight plus count.

(The foregoing item was adopted by majority vote)

4. Antifreeze

The Texas Department of Agriculture petitioned NCWM to draft a model antifreeze regulation which would address the problems of registration, testing, and uniform labeling. A copy of the Texas regulation was submitted to the committee to provide ideas. The Chemical Specialties Manufacturers Association (CSMA) also submitted a model antifreeze regulation for the committee's consideration.

The committee learned that approximately 23 States now have antifreeze regulations, but that most States have not delegated enforcement responsibility to their weights and measures departments.

Additionally, the committee felt that this request was outside the scope of normal weights and measures measurement problems. The committee, therefore, suggested to CSMA and Texas officials that NCWM should not attempt to assist in securing a uniform solution to this problem.

(The foregoing item was adopted by majority vote)

5. Baler Twine and Other Cordage Commodities

Last year, several States expressed their interest in a uniform method of sale for baler and binder twine. The committee agreed to pursue this effort and believes that its contacts with State officials and representatives from many cordage companies have provided sufficient data to permit the Conference to resolve this issue. The committee was also asked to consider developing a regulation to cover all cordage commodities; however, the committee will not recommend any action as to other cordage commodities this year.

Additionally, the Cordage Institute stated that, "In the matter of development of weights and measures regulations for cordage, there are many difficult problems. Consideration must be given to whether the cordage is of natural fiber or of synthetic. We would be glad to work with you on matters of weights and measures pertaining to cordage, but urge that advice and guidance be sought from the industry broadly and not from a few companies." The committee welcomes additional advice and guidance, appreciates that the Cordage Institute wishes to cooperate in every way, and hopes to move forward with a baler and binder twine provision this year and to address other cordage commodities next year.

In addition to the quantity declarations, many other issues were discussed. These included classification as a consumer package, standard sizes, the need for tolerances, and appropriate methods for compliance testing.

The committee does not believe that it is necessary to determine whether or not baler and binder twine is a consumer commodity, but generally prefers that the declaration of quantity appear on the lower 30 percent of the principal display panel as is required for consumer packages. The committee does feel that the model provision as drafted should set forth all packaging and labeling requirements, such as statements of responsibility, county of origin, and insect repellent usage.

Several companies indicated that they could support a reduction in the number of sizes and felt that a simplified set of allowable quantities could be beneficial to the industry. No action will be recommended this year on standard sizes; however, the committee hopes to secure agreement on tolerances for two quantities (length and knot strength) which are important in the trade. Test methods for compliance will not be spelled out in the committee's recommendation.

After considering many quantity declarations suggested by various sources, the committee felt that length, net weight, and knot strength were the key quantities and should appear in the lower 30 percent of the principal display panel in metric units

(which of course may be followed by customary equivalents). All other quantities that should or are required to appear should be included in a table on the outside of the package.

The committee, therefore, recommends for consideration and adoption the following new section:

SECTION X. BALER AND BINDER TWINE.—Baler and binder twine shall be sold on the basis of length in metres or feet, net weight in kilograms or pounds, and knot strength in newtons or pounds. This declaration shall appear in a prominent location on the outside of the package (for a consumer package, the lower 30 percent of the principal display panel).

The allowable difference between declared and actual length shall be minus 5 percent of the declared length. The allowable difference for knot strength shall be determined on the basis of test methods recognized by NBS. The effective date of this regulation for domestic and imported twine shall be September 1, 1977.

(The foregoing item was adopted by majority vote)

6. Carpets and Carpet Padding Materials

The Western Weights and Measures Association recommended that the Committee on Laws and Regulations favorably consider amending the Method of Sale of Commodities Regulation as follows: "Carpets and carpet padding materials shall be labeled and advertised to state the weight per unit of measure and to accurately identify the product."

This problem and the proposed amendment to resolve it were previously recommended by the Western States Association. The committee felt there was inadequate documentation and justification for the proposed change. The Western Weights and Measures Association requested such data from its members and transmitted the following findings to the Committee on Laws and Regulations for consideration at the 1976 interim meeting:

A summary of responses indicates:

- a. There was unanimous support for the amendment.
- b. No opposition appeared.
- c. Consumer organizations appear to be very concerned and support the amendment.

- d. There has been some Federal study (Federal Trade Commission) in addition to consideration by the California Legislature.
- e. Retail dealers, as well as individual consumers, need the protection supplied by the regulation. (They show samples of carpets in their stores. After sale, they send order to the supply warehouse, (separate from retailer), the carpet layers pick up the carpet and in many cases, the carpet layed is not the weight and texture of the sample. Many times this is not known until many months after the carpet is installed. Need to have samples labeled weight per square yard and the rug labeled same as sample. In many instances, the retailer is at the mercy of the warehouse firm.)
- f. One jurisdiction suggested: "Backing of jute or rubber can be single or double layered. Weight can be added to the square by additional latex making it heavier and seemingly of better quality. Accurate identity information should require the type of backing and the type of fiber (continuous filament or stapled)."

The Carpet and Rug Institute informed the committee of the activities currently taking place which involve other Federal agencies. These agencies include the Federal Housing Administration (FHA), Federal Trade Commission (FTC), and General Services Administration (GSA). Of particular note, it was suggested, it would be the determination by GSA of the value to consumers of a declaration of the weight per square measure of carpets. It was not anticipated, however, that this information would be available this year. Additionally, the Carpet and Rug Institute felt that the major problem was one of misinformation and pointed out efforts were being made to provide educational information for consumers. One example they cited showed two carpets with different weight per square yard and different pile contents. They stated that if their example items were priced the same, the lighter weight one would have been the better buy.

As a result of this testimony, the committee felt that not enough was known at the time of the hearings to make a definite recommendation. Nevertheless, the committee believes a position should be taken and now recommends for consideration and adoption the following new section:

SECTION X. CARPET AND CARPET PADDING MATERIAL.—Carpet and carpet padding material shall be sold by the

square yard. The declaration of net quantity shall also include the weight in ounces per square yard. The identity statement shall positively identify the fiber content.

After considerable discussion by all sides, a motion was made and seconded to table this item.

(The foregoing item was tabled by majority vote)

7. Insulation

A citizen's complaint registered with the Bureau of Consumer Protection and Environmental Health, Milwaukee, Wisconsin, about the amount of pouring insulation received in a purchase was forwarded to NCWM by Wisconsin weights and measures officials.

These officials made a thorough investigation and learned that there is no uniform trade practice as to the method of sale for pouring insulation. Some of the quantity declarations found include the following:

- 10 pound average weight
- 4 cubic feet when properly applied
- Net weight—Not less than 12 pounds
- 3 cubic feet
- Compression packed to 3 cubic feet
- 3 cubic feet, approximately 10 pounds net
- 23¹/₂ pounds net
- Approximately 4 cubic feet
- 5 cubic feet when packed
- 20 pounds net

Also listed in the survey results were packages with no quantity declaration and one package with no identity or quantity declaration.

The petition to NCWM concluded that there was a need for establishing a method of sale for pouring insulation. It was further stated that since there has been a great deal of activity in the promotion and sale of insulating materials to combat the energy crisis, we feel that the consumer who buys these products should be able to do so on a fair and equitable basis.

Industry representatives from various segments of the pouring insulation industry discussed with the committee the various types of pouring insulation, the existing standards, and the information needs of the consumer.

The National Cellulose Insulation Manufacturers Association stated that their industry generally endorses nationally recog-

nized standards in a given product area. The proposed Federal Specification HH-I-515 C requires that the package shall be marked with the minimum weight of insulation per bag and also shows the coverage of the insulation.

The Association believes that coverage tables should be predominantly incorporated on the container. Thermal insulation is purchased to fulfill these characteristics and such terminology is commonly accepted in the field.

The requirement also exists in the proposed specification that the minimum weight shall be shown on the container. This can only lead the purchaser to the conclusion that the weight of the bag is of primary importance in the purchase of thermal insulation, a misleading concept.

Because of this, they strongly recommend that "R" values and coverage of the material be made the dominant marking on the bag for the guidance of the consumer and that the minimum weight of the insulation be made a subordinate item for the guidance of a field inspector. The Association, therefore, urges that NCWM move to rectify this matter.

The committee finds that this issue should be broadened to include insulation in forms other than pouring types and broadened so as to provide weights and measures protection for consumers who have insulation installed by contractors. Therefore, the committee will continue to study this issue and plans to make a recommendation next year.

(The foregoing item was adopted by majority vote)

8. Hardwood Lumber

The Western States Weights and Measures Association (WSW&MA) asked NCWM to adopt a resolution in support of its position concerning trade practices in the hardwood lumber industry.

It further recommended that the executive secretary of NCWM or a standing committee of NCWM contact the National Hardwood Lumber Association (NHLA) to secure that organization's support and assistance in changing industry trade practices.

The following statement was based on information provided to the WSW&MA by the State of California and the Southern California Hardwood Lumber Association:

Hardwood lumber is sawn in standard thicknesses and random widths and lengths. It is sold at the wholesale level either green or kiln dried, and at retail as kiln dried. Basis for trading is board feet net tally. While not universal, it is a common

practice in some areas selling hardwood lumber kiln dried to add back to the net tally the shrinkage loss from drying. As a result, the actual price per unit is understated, and the actual quantity delivered is overstated. This practice should be eliminated so that sales invoices reflect actual quantities delivered and so that price representations are correct. If all weights and measures jurisdictions enforce existing laws and regulations, the practice can be controlled

The executive secretary of the NCWM contacted the National Hardwood Lumber Association as requested and responded to the FTC after they had been asked to inquire into the matter. It was generally felt at the time that a reasonable and acceptable solution was achievable and could be set forth by this committee in this report. The Committee on Laws and Regulations must now report that this feeling may be somewhat optimistic.

After the interim meetings, NHLA presented the following suggestion (which contains revisions discussed with the committee at the Conference) for the sale of hardwood lumber.

- a. Hardwood lumber which has been measured after kiln drying shall be quoted and invoiced with no measurement addition for kiln shrinkage, unless otherwise agreed in a prior written negotiated contract between buyer and seller; in which case the basis of measurement and the percentage added for kiln shrinkage shall be conspicuously stated on each quotation and invoice.
- b. Hardwood lumber which has been measured prior to kiln drying may be quoted and invoiced on green or air dried measurement, provided that the quotations and invoices conspicuously state that the lumber was measured prior to kiln drying.

After careful consideration of the position taken by NHLA and all other information received during the closed and open hearings, the majority of the committee believes that other suggestions are more consistent with basic weights and measures principles and recommends that the Conference take the position that the hardwood lumber industry convert to the net measurement system.

Therefore, the committee recommends for consideration the following new section:

SECTION X. HARDWOOD LUMBER.—All sales of hardwood lumber whether green or dry, shall be made on the basis of net board footage as delivered to the purchaser.

The effective date for this regulation shall be September 1, 1977.

After lengthy discussion, a motion was made and seconded to table the Hardwood Lumber issue for further consideration at the 1977 Conference.

(The foregoing item was tabled by majority vote)

9. Sod and Turf

The Southern Weights and Measures Association recommended that a method of sale be developed for sod and turf. The committee agrees and recommends for consideration the following new section:

SECTION X. SOD AND TURF.

(a) Application. For the purpose of this regulation this section shall apply to all sod, including turf sod, turf plugs and turf sprigs.

(b) Definitions.

- (1) Sod shall mean "turf sod," "turf plugs," or "turf sprigs" of a single kind or variety or a mixture of kinds and varieties.
- (2) Turf shall mean a live population of one or more kinds of grasses, legumes or other plant species used for lawns, recreational use, soil erosion control or other such purposes.
- (3) Turf plug shall mean a small section cut from live turf of those kinds of turf normally vegetatively propagated (such as zoysia grass), which when severed contain sufficient plant material to remain intact.
- (4) Turf sod shall mean a strip or section of live turf which when severed contains sufficient plant material to remain intact.
- (5) Turf sprig shall mean a live plant, stolon, crown or section cut from stolonifera plants used as turf.

(c) Quantity. Sod shall be advertised, offered for sale and sold

by measure or by a combination of count and measure as prescribed by this subsection.

- (1) Turf sod. Turf sod shall be advertised for sale and sold in terms of square metre, square feet or square yards, as appropriate.
- (2) Turf plugs. Turf plugs shall be advertised for sale and sold in terms of count, combined with a statement of the average plug diameter.
- (3) Turf sprigs. Turf sprigs shall be advertised for sale and sold in terms of the litre or the bushel.

When the American Sod Producers Association learned of this consideration, they indicated that standardizing would be very difficult because of various consumer demands and needs in various areas. They, therefore, respectfully request that any guidelines be delayed for at least a year to allow time for adequate study, research and analysis of the industry and its various elements of marketing. Nevertheless, the committee believes that a solution to this problem can be agreed to this year and requests the cooperation of all concerned to ensure that this new section will be effective.

After discussion, a motion was passed to delete the word "average" from (c)(2) Turf plugs.

(The foregoing item as amended was adopted by majority vote)

General

1. Vending Machines

Last year the Western States Weights and Measures Association submitted a proposal that Section 15 of the Model State Method of Sale of Commodities Regulation be amended to read as follows:

SECTION 15. MACHINE VENDED COMMODITIES.—All vending machines dispensing commodities shall indicate:

- (a) Product identity.
- (b) Net quantity.
- (c) Name, address and telephone number of responsible party.

The requirements for net quantity delivered and product identity shall be met by information posted on the outside of the machine; except that when the commodity delivered is contained in a consumer package, such requirements may be met by display of the package, providing the package conforms with the Model State Packaging and Labeling Regulation.

The Committee on Laws and Regulations sought to table this item until this year in order to study the issue.

The National Automatic Merchandising Association stated that by adding net quantity statements to present selectors on beverage vending machines, it would require severe reduction of the type sizes used plus added written material. This would result in consumer confusion and difficulty in making the proper product selection.

Many technical ramifications must be considered in a cup volume discussion such as: lime deposits in valves which necessitate regular setting and resetting; requests from locations to change the machine "throws" to reduce spillage; different cup levels occasioned by the temperature of products and their heat retention characteristics; and others. Because of these technicalities, the Association feels that the preprinted net quantity statements must be prepared by operators or suppliers of vending machines rather than by machine manufacturers. The Association, therefore, fails to see in the present proposal any evidence of consumer benefit or demand.

The committee believes that commercial measuring and dispensing devices are under the jurisdiction of the Committee on Specifications and Tolerances and, therefore, will seek its guidance before making a decision. The Committee on Specifications and Tolerances will consider this item at the 62nd Conference.

(The foregoing item was passed by majority vote)

2. Drained Weight Enforcement

Recent changes to weights and measures laws and proposed rules from the Food and Drug Administration (FDA) on drained weight labeling have generated some concern that enforcement of drained weight by weights and measures officials will pose many problems. For example, the State of New Mexico is on record as being opposed to drained weight requirements as they do not believe that they are able to adequately check for drained weight and do not believe that the FDA proposal adequately takes care of the various exceptions which are going to occur in the use of material liquids plus solids contained in a container.

The committee hereby requests that this matter be referred through the NCWM Resolutions Committee to Congress for appropriate action. The Committee on Laws and Regulations suggests that the Resolutions Committee point out that weights and measures officials will need training, equipment and other assistance and that the FDA (or OWM) budget must earmark sufficient funds to meet these needs and support the additional responsibilities which weights and measures officials will have to assume.

(The foregoing item was passed by majority vote)

3. Posting of Load Capacities on Trucks

The Southern Weights and Measures Association proposed the promulgation of a regulation on quantity labeling for commercially used dump trucks. The committee opposes adoption this year and recommends for further study the following proposed addition to the Model State Method of Sale of Commodities Regulation:

SECTION X. THE POSTING OF LOAD CAPACITIES ON TRUCKS AND OTHER EARTH-HAULING CONVEYANCES.

(a) The following words or terms shall have the meaning set forth herein when used in these rules and regulations.

(1) "Dump truck" is a term used to describe a motor vehicle (truck) used as a measure and a transport conveyance to move or haul soil, fill dirt and/or crushed stone from one location to another, to be discharged (unloaded) either in one location or to be scattered over an area.

(2) "Tailgate" is a term used to denote a hinged or movable upright rear section of the body which can be released to facilitate dumping or unloading of its cargo on the ground.

(3) "Side panel section" is a term used to identify a portion of the upright side wall of the dump body.

(b) Application. These rules and regulations shall apply to all dump trucks used for hire or used to calculate load for which pay, or other remuneration, is received or as a service provided as a part of a barter arrangement. These rules and regulations shall not apply to single draft

motorized earth-moving equipment used in the process of grading, leveling or landscaping within a given site.

(c) The load capacity of commercial dump trucks shall be lettered, stenciled or painted in contrasting colors on the front left panel (driver's side) of the dump truck, and on left panel of the tailgate.

(1) Volume (capacity) will be determined using inside measurements of the side from front to rear, the width from side to side, and height from the floor of the body to an average height of the sides and ends of the body.

(2) Posted capacity shall be in terms of the nearest tenth of a cubic yard (cu yd), i.e., "Capacity: 7.6 cu yd" or in terms of the nearest tenth of a cubic meter (m³), i.e., "Capacity: 5.8 m³."

(3) The lettering of the capacity shall be composed of letters and numbers of at least 20 cm high by 7 cm wide.

(The foregoing item was passed by majority vote)

MODEL STATE PACKAGING AND LABELING REGULATION

1. Responsibility Statement to Require Address of Central Office of Manufacturer

A consumer advocate put forth the proposition that every item sold in interstate commerce at the retail level must have the name and address of the manufacturer of said item. Section 5. Declaration of Responsibility: Consumer and Nonconsumer Packages, of course, does not cover nonpackaged items and it does not appear that authority under weights and measures laws is broad enough to permit any such regulation nor does the committee believe that traditional weights and measures jurisdiction extends to every retail item.

Declaration of responsibility regulations have been construed to permit any person in the distribution chain to be specified in a declaration of responsibility. In many instances the manufacturer may not be the most appropriate agency for consumers, who are seeking to resolve problems, to contact. Therefore, the committee concludes that it should not present to the Conference a recommendation for change in this area.

(The foregoing item was passed by majority vote)

The Department of Commerce through the Office of Weights and Measures of the National Bureau of Standards, under its statutory responsibility for "cooperation with the States in securing uniformity in weights and measures laws and methods of inspection," developed Section 10.3.:

SECTION 10.3. AEROSOLS AND SIMILAR PRESSURIZED CONTAINERS.—The declaration of quantity on an aerosol package, and on a similar pressurized package, shall disclose the net quantity of the commodity (including propellant), in terms of weights, that will be expelled when the instructions for use as shown on the container are followed.

Several States, which are among the 32 that have adopted the Model State Packaging and Labeling Regulation, indicated that pressurized cans were currently being marked by volume rather than by weight as required above. Industry representatives indicated that according to the Food and Drug Administration, they are permitted to mark this type of container by volume and that for competitive purposes they will continue to do so. The NCWM was asked to contact FDA and inform them that a declaration of volume on pressurized containers is not acceptable to the States since it cannot be verified.

A meeting was requested to express NBS/NCWM's concern over the FDA position on quantity of contents declarations on aerosols, which is found in the Fair Packaging and Labeling Act (FPLA) Manual Guide FDA 7563.7. This Guide states that in the past, FDA has not objected to the use of units of volume to declare the net contents of aerosol preparations that would be liquid if not combined with the propellant and a net weight statement in avoirdupois units for products that would be solids if not combined with a propellant. FDA was asked to modify its position to provide that existing State regulations (concerning aerosol quantity of contents declarations) are not superseded by FDA guidelines. FDA officials stated that FDA would consider the request, but it did not appear at the time of the interim meetings that FDA would make any statement to modify its position without following each administrative procedure and permitting interested parties to exhaust every element of due process.

One industry representative stated that there has been a good deal of concern that fluorocarbon propellants may in the long run cause the partial destruction of the ozone layer in the upper atmosphere surrounding the earth, and that the diminution of the ozone layer would have adverse effects on human health. There-

fore, they have converted to new formulations which eliminate fluorocarbon propellants. As a result of this conversion to a nonfluorocarbon propellant system, which uses a propellant with a much lower density than that of the usual fluorocarbon propellants, continued use of weight measure would be highly misleading to the consumer.

Therefore, some spray labels have been changed so as to denote the contents in terms of fluid measure rather than in terms of weight measure.

They stated that if manufacturers were to be required to use weight measure, consumers would be deceived into buying products, such as hair spray, with a large amount of fluorocarbon which vaporizes before it reaches the hair rather than products with a large amount of base which is what the consumer wants. They further indicated that they wished to avoid a confrontation with the States over this issue and believe that the matter can readily be resolved without the need for litigation. Although the use of fluid measure on the principal panel will give consumers the most helpful information at the point of purchase, the industry would have no objection to putting the net weight on the back of the label.

The committee wishes to commend FDA for their interest in this matter and the manufacturers who seek to improve their product and its labeling information. The committee is also encouraged to work with all interested parties to resolve this issue. The committee does not believe, however, that mere guidelines can preempt a uniform national regulation developed under the technical authority of the Federal agency delegated that authority by Congress and adopted by the States through its representatives, no matter how broad the preemptive clause of an act might be. Additionally, the committee cannot countenance open and notorious violations of uniform State regulations where those violations occurred prior to bringing the issue before the Conference.

The committee, therefore, believes that NCWM should support a firm stand by the States that their regulations must be respected.

(The foregoing item was adopted by majority vote)

3. Entertainment Value Film

Last year the Conference agreed to follow FTC guidelines in requiring lineal measure for the sale of movie films. During the year, discussions continued with FTC, the State of New Jersey, and industry representatives.

Industry representatives proposed a declaration as to the running time of the film, rather than the actual footage of the film, in

the belief that such a disclosure as to running time is the only declaration that would be meaningful to the average purchaser.

The committee agrees and, therefore, recommends for consideration the following addition to Section 11.22:

- (b) **The net quantity of contents on packages of exposed movie film is expressed in terms of the running time of the exposed film for that portion of film which is of entertainment value.**

(The foregoing item was adopted by majority vote)

C. H. VINCENT, *Chairman*, Dallas,
Texas

J. T. BENNETT, Connecticut

J. L. O'NEILL, Kansas

R. W. PROBST, Wisconsin

M. TRUJILLO, Puerto Rico

T. N. TROY, *Staff Assistant*, NBS

H. F. WOLLIN, *Exec. Secy.*, NCWM

Committee on Laws and
Regulations

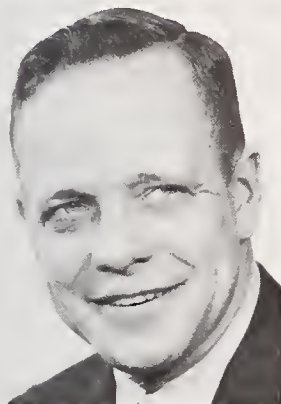
(On motion of the committee chairman, the report of the Committee on Laws and Regulations was adopted in its entirety by the Conference by majority vote. The Conference also authorized the executive secretary to make any appropriate editorial changes in the language adopted by the Conference, provided that the requirements thus adopted are strictly adhered to.)

REPORTS OF ANNUAL COMMITTEES

REPORT OF THE EXECUTIVE COMMITTEE

Presented by RICHARD L. THOMPSON, *Chairman*; Chief, Weights and Measures Section, Department of Agriculture, State of Maryland

(Thursday, July 15, 1976)



The Executive Committee submits its final report to the 61st National Conference on Weights and Measures. The report consists of the tentative report as offered in the Conference Announcement, and as amended by the final report. The report represents recommendations of the committee that have been formed on the basis of written and oral comments received during the year and oral presentations made during the open meeting of the committee.

NEW COMMITTEE

The 60th National Conference on Weights and Measures during its annual meeting last July in San Diego, California, adopted a proposal to establish a new standing committee of the Conference. The new committee will be named the "Committee on National Measurement Policy and Coordination" and will have responsibility for the establishment of policy and coordination of activities within the NCWM on matters of national and international significance.

In accordance with the Organization and Procedure of NCWM, formal action on proposed organization changes is taken by the Conference at its next annual meeting following acceptance of such proposals. Therefore, to implement the establishment of the new committee, the Executive Committee recommends adoption of the following changes to the Conference Organization and Procedure.

1. Page 2: Objectives

Amend this section by amending (a), adding a new (b), and relettering as follows:

"1. Objectives

The objectives of the National Conference on Weights and Measures are (a) to provide a national forum for the discussion of all questions related to weights and

measures administration as carried on by officials of the Federal Government and regulatory officers of the States, Commonwealths, Territories, and Possessions of the United States, their political subdivisions, and the District of Columbia; (b) to provide a mechanism to establish policy and coordinate activities within the Conference on matters of national and international significance; (c) to develop a consensus on model weights and measures laws and regulations, specifications and tolerances for commercially-used weighing and measuring devices, and testing, enforcement, and administrative procedures; (d) to encourage and promote uniformity of requirements and methods among weights and measures jurisdictions; and (e) to foster cooperation among weights and measures officers themselves and between them and all of the many manufacturing, industrial, business, and consumer interests affected by their official activities."

2. Page 5: Committees

Standing Committees.—Amend this section to read as follows:

"5. Committees

Standing Committees.—The standing committees are the Committee on National Measurement Policy and Coordination, the Committee on Specifications and Tolerances, the Committee on Laws and Regulations, the Committee on Education, Administration and Consumer Affairs, and the Committee on Liaison with the Federal Government. The membership of the Committee on National Measurement Policy and Coordination shall be comprised of the committee chairmen of the other four standing committees and a fifth member who shall be appointed annually by the Conference president from the list of former Conference chairmen who are still active in weights and measures regulatory service. This fifth member shall also serve as committee chairman and may be reappointed annually for a total term of office not to exceed five years.

The membership of the remaining standing committees shall have a normal complement of five members appointed by the president from the active membership (except that the members of the Committee on Liaison with the Federal Government may be appointed from the active or the associate membership) on a rotating basis for five-year terms (one new member being appointed, and one old member retiring, each year). When it is necessary to make an appointment to any of the five standing committees to fill a vacancy caused by the death, resignation, or retirement from active service of a committee member, the appointment shall be for the unexpired portion of such member's term. Except as noted, each standing committee annually selects one of its members to serve as its chairman. At his option, the president may designate one or more advisory or associate members as consultants to a standing committee."

3. Page 8: Following the paragraph on "Executive Committee" add the following:

Committee on National Measurement Policy and Coordination.—The Committee on National Measurement Policy and Coordination annually presents a report to the Conference on its activities. Its policies and coordinating efforts are subject to Conference ratification. The objective of this committee is to serve as a policymaking and coordinating body in matters of national and international significance which may include such areas as metrication, International Organization of Legal Metrology (OIML), American National Standards Institute (ANSI), International Standards Organization (ISO), American Society for Testing and

Materials (ASTM), National Conference on Standards Laboratories (NCSL), and such internal matters as may be required.

To avoid unnecessary delay in the important work of the Committee on National Measurement Policy and Coordination (referred to as P & C Committee), the Executive Committee authorized the formation of the committee on a tentative basis following the Conference last year. The Conference president appointed Mr. Sydney D. Andrews, State of Florida, to serve as chairman of the committee.

A comment was received from the floor regarding the composition of the Committee on National Measurement Policy and Coordination, but this comment was not received in sufficient time to be given adequate consideration by the current Executive Committee. This issue will be referred to the incoming Executive Committee for its consideration.

(The foregoing item was adopted by majority vote.)

VOTING PROCEDURE

The Executive Committee wishes to acknowledge the recommendation it has received from the Committee on National Measurement Policy and Coordination to eliminate voice voting procedures in all actions taken by the NCWM. The Executive Committee strongly endorses this recommendation and will instruct all officers, committeemen, and presiding officials for the 61st NCWM to call for either a show of hands or a standing count of voting delegates on all matters that come before the Conference which require voting procedures.

The advantages of this recommendation to create a more positive and systematic voting procedure in the NCWM will far outweigh the small amount of added time that these procedures will require.

A comment was received from the floor for additional modification of the voting procedure; however, this proposal was not received in sufficient time for adequate study and will be referred to the incoming Executive Committee.

(The foregoing item was adopted by majority vote.)

NOMINATIONS TO THE U.S. METRIC BOARD

On April 23, 1976, a letter was received from the Honorable E. L. Richardson, Secretary of the U.S. Department of Commerce, requesting the National Conference on Weights and Measures to submit a list of nominees for the U.S. Metric Board by May 31. A

list of nominees was generated by the standing committees at the interim meetings in January 1976. The names of Sydney D. Andrews, Florida, as the Conference nominee, and Kendrick J. Simila, Oregon; C. G. Gehringer, (retired) Pennsylvania Scale Company; George E. Mattimoe, Hawaii; and M. W. Jensen, (retired) Can Manufacturers Institute, as alternates, were submitted to the U.S. Department of Commerce on May 12, 1976, after final approval by the Executive Committee.

(The foregoing item was adopted by majority vote.)

PLANS FOR THE 62ND NATIONAL CONFERENCE ON WEIGHTS AND MEASURES

The plan and general arrangements for the 62nd National Conference on Weights and Measures were reviewed and included the following:

Site: Dallas, Texas

Hotel: Sheraton-Dallas

Dates: July 17-22, 1977

Rates: Single \$26.50, Double \$33.50

Registration Fee: \$50

All persons who wish to comment for committee consideration on the tentative reports must do so in writing. These communications must be received by the Executive Secretary no later than June 15.

(The foregoing item was adopted by majority vote.)

NCWM FINANCES

The Executive Committee recommends that up to \$2,000 be appropriated each year to cover International Organization of Legal Metrology (OIML) expenses by NCWM representatives for actual and necessary expenses in international work and committee meetings in the United States.

The Committee recommends the approval of expenditures not to exceed \$1,000 per year, including the 1976 Conference, to cover staff out-of-pocket expenses which are not reimbursed by the Federal Government or Office of Weights and Measures budgets.

(The foregoing item was adopted by majority vote.)

NCWM INTERIM MEETINGS

All NCWM standing committees will meet to consider and develop tentative reports on all matters carried over from the previous Conference, new proposals, and problems that the committees feel require attention.

Site: National Bureau of Standards

Dates: January 24-28, 1977

Attendance: Government officials, industry representatives, and consumers may attend the interim meetings to appear before a committee on a matter of concern to them. Such appearance is scheduled on the basis of a written request to the Executive Secretary.

Communications: All persons who wish to communicate proposals, suggestions, or other items for committee consideration must do so in writing. These communications must be received by the Executive Secretary no later than January 1.

(The foregoing item was adopted by majority vote.)

REPORT OF THE ASSOCIATE MEMBERSHIP COMMITTEE

Ed Wolski, chairman of the Associate Membership Committee, reported to the delegates that the associate membership is not fully aware of the intended purpose and mission of the committee. The Associate Membership Committee suggests that in the coming years the members of industry let their problems be known to the committee and the committee be used as a clearinghouse for matters of general importance to industry. Also, the Associate Membership Committee requests the standing committees of the Conference to utilize the committee as a source of industry input for consideration in matters under study.

(The foregoing item was adopted by majority vote.)

SUGGESTIONS FROM THE MEMBERSHIP

The committee would like to encourage active members of the Conference to send in their suggestions as to program speakers, topics, schedules, activities, and other related matters to the executive secretary so that such suggestions may be considered by the Executive Committee in the development of the program for next year.

(The foregoing item was adopted by majority vote.)

R. L. THOMPSON, *Chairman*,
Maryland
L. A. GREDY, Indiana
E. KEELEY, Delaware
P. E. NICHOLS, Alameda County,
California
D. I. OFFNER, St. Louis, Missouri
C. C. MORGAN, Gary, Indiana
J. H. LEWIS, Washington
E. W. BALLENTINE, South Carolina
F. L. BRUGH, Indianapolis, Indiana
H. W. CHANDLER, Yolo County,
California
A. W. FENGER, Minnesota
S. F. HINDSMAN, Arkansas
G. E. MATTIMOE, Hawaii
J. B. RABB, Alabama
W. C. SULLIVAN, Seattle,
Washington
M. TRUJILLO, Puerto Rico
W. TUSEN, New Hampshire
H. F. WOLLIN, *Exec. Secy.*, NCWM

Executive Committee

(On motion of the committee chairman, the report of the Executive Committee was adopted in its entirety by the Conference by majority vote. The Conference also authorized the executive secretary to make any editorial changes in the language adopted by the Conference.)

REPORT OF THE COMMITTEE ON NOMINATIONS

Presented by JOHN H. LEWIS, *Chairman*; Chief, Weights and Measures Section, State of Washington

(Thursday, July 15, 1976)



The Committee on Nominations met on Tuesday, July 13, for the purpose of selecting a slate of nominees for all elective offices and for the ten elective memberships of the Executive Committee. In the selection of nominees from the active membership, consideration was given to attendance records, geographical distribution, Conference participation, and other factors deemed by the committee to be important.

The Committee on Nominations submits the following names in nomination for office to serve during the ensuing year and at the 62nd National Conference on Weights and Measures:

Chairman: Earl Prideaux, Colorado

Vice Chairmen: Trafford F. Brink, Vermont; George E. Mattimoe, Hawaii; Kendrick J. Simila, Oregon; Robert T. Williams, Texas

Treasurer: James H. Akey, Wausau, Wisconsin

Chaplain: John H. Lewis, Washington

Executive Committee: Herbert W. Chandler, Yolo County, California; John M. Chohamin, Middlesex County, New Jersey; Stan J. Darsey, Florida; Louis D. Draghetti, Agawam, Massachusetts; Ronald C. Egnew, Kentucky; Lyman D. Holloway, Idaho; Vernon L. Lowe, Kern County, California; Donald L. Lynch, Kansas City, Kansas; Charles W. Moore, Madison County, Indiana; Harlon D. Robinson, Maine

J. H. LEWIS, *Chairman*, Washington
S. D. ANDREWS, Florida
G. L. JOHNSON, Kentucky
J. H. JOHNSON, Louisiana
C. C. MORGAN, Gary, Indiana

W. I. THOMPSON, Monmouth
County, N.J.

W. S. WATSON, California

Committee on Nominations

(There being no further nominations from the floor, nominations were declared closed, and the officers nominated by the committee were elected unanimously.)

REPORT OF THE COMMITTEE ON RESOLUTIONS

Presented by THOMAS E. KIRBY, *Acting Chairman*; Director,
Weights and Measures Laboratory, State of Georgia

(Thursday, July 15, 1976)



The Committee on Resolutions wishes to express the appreciation of the 61st National Conference on Weights and Measures to all who contributed in any way toward the conduct of a successful meeting. A special note of thanks is extended to the following:

1. To Dr. Ernest Ambler, Acting Director of the National Bureau of Standards, for his excellent address.
2. To the Honorable Betsy Ancker-Johnson, Assistant Secretary for Science and Technology, U.S. Department of Commerce, for her address and timely highlights on three important issues.
3. To the Honorable S. John Byington, Chairman, Consumer Product Safety Commission, for his participation on the program and his informative description of the Consumer Product Safety Commission.
4. To the Honorable Young D. Hance, Secretary, Maryland Department of Agriculture, for his address, interests, and efforts in promoting weights and measures activities.
5. To Dr. F. K. Willenbrock, Director of the Institute for Applied Technology, National Bureau of Standards, for his words of welcome and descriptive scenario of National Bureau of Standards activities.
6. To all speakers of the Conference for their immeasurable contributions to the program.
7. To all officers and appointed officials of the 61st National Conference on Weights and Measures for their valuable service

and contribution to the functioning of an orderly and successful Conference program.

8. To all committee members for having given generously of their time and efforts during the year and in the preparation and presentation of their reports.

9. To the governing officials of all State and local jurisdictions for their manifest interest in the progress of weights and measures administration in the United States.

10. To the Shoreham-Americana Hotel for their fine facilities and many courtesies which contributed to the enjoyment and comfort of the delegates.

11. To representatives of business and industry for their liberal cooperation and hospitality.

12. To the consumer representatives who have taken interest in the National Conference on Weights and Measures.

13. To the National Bureau of Standards, and in particular the staff of the Office of Weights and Measures, for planning and administering the many details involved in the work and program of the National Conference.

The following resolutions are presented in their entirety for consideration of the members of the Conference:

A Resolution of Appreciation

WHEREAS: Cleo C. Morgan, City Sealer of Gary, Indiana has made an outstanding contribution to the progress of weights and measures by his long and faithful service, and;

WHEREAS: Cleo has attended 36 consecutive National Conferences on Weights and Measures beginning with the 26th in 1941, and;

WHEREAS: Cleo served as a member of the National Conference on Weights and Measures Executive Committee during the 31st Conference in 1946 and the 37th Conference in 1952, and;

WHEREAS: Cleo served as Vice Chairman of the 33rd National Conference in 1948, and;

WHEREAS: Cleo served as Chairman of the 53rd National Conference in 1968, and;

WHEREAS: Cleo was a member of Conference committees of the 32nd, 37th, 42nd, and 54th through 61st National Conferences on Weights and Measures, and;

WHEREAS: Cleo served as Treasurer of the 43rd through the 54th National Conferences on Weights and Measures, and;

WHEREAS: Cleo C. Morgan has accepted further calls to service again as Treasurer of the 54th through the 61st National Conferences on Weights and Measures.

THEREFORE BE IT RESOLVED:

That the 61st National Conference on Weights and Measures by this resolution offers our thanks to Cleo C. Morgan for his unselfish, dedicated, and invaluable service. We express our sincere appreciation for a job well done, and wish our dear friend good luck and God speed.

Resolution to Formulate Metric Coordinating Committees at the State Level

WHEREAS: The need to establish Metric Coordinating Committees on the State and Commonwealth levels is recognized by the delegates attending the National Conference on Weights and Measures, July 12 through July 16, 1976, in Washington, D.C., and;

WHEREAS: Conversion from the customary system of weights and measures to the metric system is of great concern to each delegate to the National Conference on Weights and Measures, and;

WHEREAS: Each State and Commonwealth has a major role in helping to motivate and assist its citizens and industries in adapting to the metric system, and;

WHEREAS: Each State and Commonwealth has the responsibility for coordinating its efforts for the training of its employees and the educating and informing of its citizens with regard to the metric system, and;

WHEREAS: State agencies in the use of their manpower and expertise can play a vital leadership role in establishing a framework which will facilitate conversion to the metric system.

THEREFORE BE IT RESOLVED:

That the 61st National Conference on Weights and Measures recommends and urges the Governor of each State and Commonwealth to cause to be formed a Metric Coordinating Committee whose duties would include the development of State policy with regard to metric conversion; that it be charged with the responsibility for coordinating the voluntary transition to full use of the metric system within an appropriate time frame for State departments and other branches of government, for all segments of industry; and that it develop programs to provide information and education which the Committee deems to be in the best interest of its citizenry.

Resolution on Drained Weight

WHEREAS: The Food and Drug Administration has proposed rules that would require drained weight to be labeled, and;

WHEREAS: State and local weights and measures officials must assume the responsibility for checking packaged commodities, and;

WHEREAS: The Food and Drug Administration does not have the personnel and equipment needed to enforce the drained weight declarations and that task will be performed by the State and local weights and measures officials, and;

WHEREAS: The State and local weights and measures officials do not have, at present, enough equipment and training resources to adequately perform the task that will be imposed on them by the Food and Drug Administration's Proposed Rules on Drained Weight Labeling.

THEREFORE BE IT RESOLVED:

That the National Conference on Weights and Measures request the Office of Weights and Measures of the National Bureau of Standards to explore the possibility of securing adequate funds from the

Food and Drug Administration to provide for a training program, a checking procedure, and such auxilliary equipment as will be necessary to adequately enforce drained weight declarations.

S. F. HINDSMAN, *Chairman*,
Arkansas

A. J. ALBANESE, New Britain,
Connecticut

L. D. DRAGHETTI, Agawam,
Massachusetts

J. A. ETZKORN, South Dakota

C. E. FORESTER, Texas

T. E. KIRBY, Georgia

S. A. MALONE, Nebraska

Committee on Nominations

(On motion of the acting committee chairman, seconded from the floor, the report of the Committee on Resolutions was adopted by majority vote.)

REPORT OF THE AUDITING COMMITTEE

Presented by DONALD L. LYNCH, *Chairman*; Director, Weights and Measures, Kansas City, Kansas

(Thursday, July 15, 1976)



The Auditing Committee met on Thursday morning, July 15, for the purpose of reviewing the financial records of the Conference treasurer, Mr. C. C. Morgan. The committee finds these records to be in accordance with Conference procedure and correct.

D. L. LYNCH, *Chairman*,
Kansas City, Kansas
K. R. ADCOCK, Ohio
J. B. HARDY, Mississippi

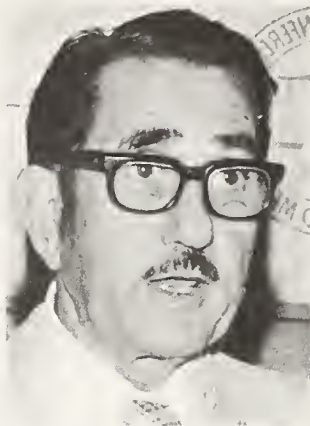
Committee on Auditing

(On motion of the committee chairman, seconded from the floor, the report of the Auditing Committee was adopted by majority vote.)

REPORT OF THE TREASURER

Presented by C. C. MORGAN, Sealer of Weights and Measures,
Gary, Indiana

(Thursday, July 15, 1976)



Balance on hand July 1, 1975 ----- \$ 3,510.12

RECEIPTS:

Registration (417 @ \$30.00) -----	\$12,510.00
Refund from Pacific Telephone Co. ----	2.73
Refund from Mr. Wollin, Misc. Ex-	
penses -----	35.90
	<hr/>
	12,548.63
	<hr/>
	\$16,058.75

DISBURSEMENTS:

Steve Miller, Conference Reception----	\$ 100.05
Print Graphic -----	79.50
Harold Wollin, Misc. Expenses -----	250.00
Crown Booking (Dance Band) -----	625.00
Sheraton-Harbor Island Hotel, Master	
Account -----	2,288.07
Sheraton-Harbor Island Hotel, Flowers	26.50
Neyenesch Printers, Inc. -----	702.78
San Diego Convention and Visitors Bu-	
reau -----	422.60
Pacific Telephone Company -----	10.92
Franklin Press, Letterheads -----	26.50
S. D. Andrews, Senate Commerce Com-	
mittee -----	190.00

Harold Wollin, Interim Meeting Expense	179.20
R. L. Thompson, Chairman, Expense ..	142.00
S & T Committee	1,627.17
L & R Committee	1,753.58
Education Committee	1,545.61
Liaison Committee	935.13
P & C Committee	513.10
Gunston Hall, Deposit	25.00
Franklin Press	78.90
Stamps	13.00
Bank Charge	5.72
	<u>11,540.33</u>

Balance on hand July 1, 1976	\$ 4,518.42
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Medallion Balance July 1, 1975	\$ 6,566.13
Income	1,950.00
	<u>\$ 8,516.13</u>

DISBURSEMENTS:

Franklin Mint	\$ 1,806.00
Franklin Mint	98.00
Franklin Mint	61.26
Franklin Mint	61.26
	<u>2,026.52</u>

Medallion Balance	\$ 6,489.61
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Conference Balance	4,518.42
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Balance	<u>\$11,008.03</u>
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Bank Balance	\$11,003.03
Cash on hand	5.00
Balance	<u>\$11,008.03</u>

Depository: Bank of Indiana

(Signed) C. C. MORGAN, *Treasurer*

(On motion of the treasurer, seconded from the floor, the Report of the Treasurer was adopted by the Conference.)

PERSONS ATTENDING THE CONFERENCE

State, City, and County Weights and Measures Officials

ALABAMA

State ----- JOHN B. RABB, Metrologist, Weights and Measures, Department of Agriculture and Industries, P. O. Box 3336, Montgomery 36109 (Tel. 205:832-6766)

City Weights and Measures Officials:

Birmingham 35203 ----- W. B. HARPER, Chief, Weights and Measures Division, Room 207, City Hall (Tel. 205:254-2246)

ALASKA

State ----- JAMES E. BRUCE, Acting Chief, Weights and Measures Section, 2263 Spenard Road, Anchorage 99503 (Tel. 907:279-0508)
CHARLES L. CORINTH, Civil Engineering Assistant III

ARIZONA

State ----- RICHARD F. HARRIS, Assistant Director, Department of Administration, Weights and Measures Division, 10202 North 19th Avenue, Phoenix 85021 (Tel. 602:271-5211)
RAYMOND H. HELMICK, Chief, Weights and Measures Division and Arizona Consumers Council

ARKANSAS

State ----- SAM F. HINDSMAN, Director, Weights and Measures, 4608 West 61st Street, Little Rock 72209 (Tel. 501:371-1759)

CALIFORNIA

State ----- E. F. DELFINO, Chief, Division of Measurement Standards, Department of Food and Agriculture, 8500 Fruitridge Rd., Sacramento 95826 (Tel. 916:445-7001)
WALTER S. WATSON, Special Assistant

County Weights and Measures Officials:

Alameda ----- PATRICK E. NICHOLS, Director, Weights and Measures, 333 Fifth Street, Oakland 94607 (Tel. 415:874-6736)

Kern ----- VERNON L. LOWE, Director, Weights and Measures, 1116 East California Avenue, Bakersfield 93307 (Tel. 805:861-2418)

Riverside ----- JOSEPH W. JONES, Director, Weights and Measures, 2950 Washington, Riverside 92504 (Tel. 714:787-2620)

San Bernardino ----- H. E. SANDEL, Director, Weights and Measures and Consumer Affairs, 160 East Sixth Street, San Bernardino 92415 (Tel. 714:383-1411)

San Mateo ----- H. EUGENE SMITH, Director, Weights and Measures, 702 Chestnut Street, Redwood City 94063 (Tel. 415:364-5600, ext. 2227)

Ventura ----- WILLIAM H. KORTH, Director, Weights and Measures, 608 El Rio Drive, Oxnard 93030 (Tel. 805:487-7711, ext. 4378)

Yolo ----- HERBERT W. CHANDLER, Director, Weights and Measures, P. O. Box 175, Woodland 95695 (Tel. 916:666-8261)

COLORADO

State ----- EARL PRIDEAUX, Chief, Weights and Measures Section, Department of Agriculture, 3125 Wyandot, Denver 80211 (Tel. 303:892-2845)
MILTON D. SCHNEIDER, Chief, Oil Inspection Section, Division of Labor, 888 East Iliff, Denver 80210 (Tel. 303:892-2096)

CONNECTICUT

State ----- JOHN T. BENNETT, Chief, Weights and Measures Division, Department of Consumer Protection, State Office Bldg., Room G-17, Hartford 06115 (Tel. 203:566-4778)

City Weights and Measures Officials:

Derby 06418 ----- JOHN T. NICOSIA, President, Connecticut Weights and Measures Association, 173 Park Avenue (Tel. 203:734-6213)

Middletown 06457 ----- GUY J. TOMMASI, Sealer, Weights and Measures, Town Hall (Tel. 203:347-4671)

DELAWARE

State ----- EUGENE KEELEY, Supervisor, Weights and Measures, Department of Agriculture, Drawer D, Dover 19901 (Tel. 302:678-4824)

FLORIDA

State ----- SYDNEY D. ANDREWS, Director, Division of Standards, Department of Agriculture and Consumer Services, Mayo Building, Lab Complex, Tallahassee 32304 (Tel. 904:488-0645)
COUNCIL WOOTEN, Chief, Bureau of Weights and Measures (Tel. 904:488-9140)
STAN J. DARSEY, Assistant Chief

County Weights and Measures Officials:

Dade ----- JOHN C. MAYS, Director, Consumer Protection Division, 140 West Flagler Street, 16th Floor, Miami 33130 (Tel. 305:579-4222)

GEORGIA

State ----- O. D. MULLINAX, Director, Fuels and Measures Division, Department of Agriculture, Agriculture Building, Capitol Square, Atlanta 30334 (Tel. 404:656-3605)
THOMAS E. KIRBY, Director, Weights and Measures Laboratory, Atlanta Farmers Market, Forest Park 30050 (Tel. 404:363-7611)

HAWAII

State ----- GEORGE E. MATTIMOE, Deputy Director, Weights and Measures, Department of Agriculture, 1428 South King Street, Honolulu 96814 (Tel. 808:941-3071, ext. 173)
CHARLES G. BOCKUS, Metrologist, Weights and Measures, Department of Agriculture, P. O. Box 226, Captain Cook 96704 (Tel. 808:323-2608)

IDAHO

State ----- LYMAN D. HOLLOWAY, Chief, Bureau of Weights and Measures, 2126 Warm Springs Avenue, Boise 83702 (Tel. 208:384-2345)

ILLINOIS

State ----- MURVIL D. HARPSTER, Chief, Bureau of Product Inspections and Standards, Department of Agriculture, State Fairgrounds, Springfield 62706 (Tel. 217:782-3817)
SIDNEY COLBROOK, Quantity Standards Technician

INDIANA

State ----- LORENZO A. GREDY, Director, Division of Weights and Measures, State Board of Health,

1330 West Michigan Str., Indianapolis 46206
(Tel. 317:633-6860)
JOHN E. BASHAM, Chief, Sanitary Bedding Section

County Weights and Measures Officials:

Clark -----	ROBERT W. WALKER, Inspector, Weights and Measures, City-County Bldg., Room 314, Jeffersonville 47130 (Tel. 812:283-4451)
Gibson -----	W. R. SEVIER, Inspector, Weights and Measures, Courthouse Annex, Princeton 47683 (Tel. 812:795-2532)
Lake -----	ALBERT M. MYSOGLAND, Inspector, Weights and Measures, 2293 North Main Street, Crown Point 46307 (Tel. 219:663-2896)
Laporte -----	EDWIN HANISH, Inspector, Weights and Measures, 2702 Franklin Street, Michigan City 46360 (Tel. 219:879-9486)
Madison -----	CHARLES W. MOORE, Inspector, Weights and Measures, County Government Center, Anderson 46011 (Tel. 317:646-9359)
Porter -----	RICHARD CLAUSSEN, Inspector, Weights and Measures, 157 Franklin Street, Valparaiso 46383 (Tel. 219:464-4722)
St. Joseph -----	CHESTER S. ZMUDZINSKI, Inspector, Weights and Measures, 227 West Jefferson Boulevard, County-City Bldg., South Bend 46601 (Tel. 219:284-9751)
Tippecanoe -----	WEBSTER McMURRAY, Inspector, Weights and Measures, County Courthouse, P. O. Box 444, LaFayette 47902 (Tel. 317:447-3230)
Vigo -----	ROBERT J. SILCOCK, Inspector, Weights and Measures, Court House, Room 5, Terre Haute 47802 (Tel. 812:232-5746)
Wayne -----	FRANCIS DANIELS, Inspector, Weights and Measures, 1018 Parry Street, Richmond 47374 (Tel. 317:935-4813)

City Weights and Measures Officials:

Anderson 46011 -----	EARL GADBERRY, Inspector, Weights and Measures, P. O. Box 2100 (Tel. 317:646-5814)
East Chicago 46312 -----	THAD A. BOGUSZ, Sealer, Weights and Measures, 4713 Northcote Avenue (Tel. 219:397-0073)
Gary 46402 -----	C. C. MORGAN, Sealer, Weights and Measures, 1100 Massachusetts (Tel. 219:944-6566)

- Hammond 46320 ----- DEAN BRAHOS, Sealer, Weights and Measures,
Room 315, 5925 Calumet Avenue (Tel. 219:853-
6377)
- Indianapolis 46204 ----- FRANK L. BRUGH, Administrator, Weights and
Measures, City-County Bldg., Room G6 (Tel.
317:633-3733)
GUS PAPPAS, Deputy Inspector
HARRY RICHARDS, Deputy Inspector
- Mishawaka 46544 ----- GEORGE STAFFELDT, Inspector, Weights and
Measures, City Hall (Tel. 219:255-2281)
- New Albany 47150 ----- JAMES M. MOREILLON, Deputy Inspector,
Weights and Measures, City-County Bldg.,
Room 325 (Tel. 812:945-5357)
- South Bend 46621 ----- BERT S. CICHOWICZ, Sealer, Weights and Meas-
ures, Municipal Facility, 701 West Sample
Street (Tel. 219:284-9273)

IOWA

- State ----- J. CLAIR BOYD, Supervisor, Standards Control,
Weights and Measures Division, Department
of Agriculture, State Capitol, Des Moines
50319 (Tel. 515:281-5716)
CURT MCNEIL, Technician II

KANSAS

- State ----- JOHN L. O'NEILL, State Sealer, Weights and
Measures, Department of Agriculture, State
Office Bldg., Topeka 66612 (Tel. 913:296-3846)

City Weights and Measures Officials:

- Kansas City 66101 ----- DONALD L. LYNCH, Director, Weights and Meas-
ures, 701 North Seventh Street (Tel. 913:371-
2000, ext. 440)
- Topeka 66603 ----- DONALD J. WEICK, Chief Inspector, Weights and
Measures, City Building, Room 353, Seventh
and Quincy (Tel. 913:235-9261, ext. 205)

KENTUCKY

- State ----- GEORGE L. JOHNSON, Director, Division of
Weights and Measures, 106 West Second
Street, Frankfort 40601 (Tel. 502:564-4870)
RONALD C. EGNEW, Laboratory Supervisor

LOUISIANA

- State ----- CHARLES S. JOHNSON, Technical Administrator,
Division of Weights and Measures, Depart-

ment of Agriculture, P. O. Box 44292, Capitol
Station, Baton Rouge 70804 (Tel. 504:389-7087)

MAINE

State ----- HARLON D. ROBINSON, Deputy State Sealer,
Weights and Measures, Department of Agri-
culture, Division of Inspections, State Office
Building, Augusta 04333 (Tel. 207:289-3841)
GAYLON M. KENNEDY, Metrologist (Tel. 207:289-
2752)

MARYLAND

State ----- YOUNG D. HANCE, Secretary, Department of
Agriculture, Parole Plaza Office Building, An-
napolis 21401 (Tel. 301:267-1161)
RICHARD L. THOMPSON, Chief, Weights and
Measures, Department of Agriculture, Sy-
mons Hall, Room 3205, College Park 20742
(Tel. 301:454-3551)
LACY H. DEGRANGE, Field Supervisor
CHARLES R. STOCKMAN, Metrologist

County Weights and Measures Officials:

Prince George's ----- ROBERT J. CORD, Chief, Weights and Measures
Branch, Division of Business Standards, 9133
Central Avenue, Capitol Heights 20027 (Tel.
301:350-5802)
DONALD F. SAVAGE, Deputy Sealer II

City Weights and Measures Officials:

Baltimore 21202 ----- THOMAS A. CONSIDINE, Chief, Division of Tests,
1103 Municipal Building (Tel. 301:396-3457)

MASSACHUSETTS

State ----- EDWARD H. STADOLNIK, Head Administrative
Assistant, Division of Standards, Executive
Office of Consumer Affairs, Room 1115, One
Ashburton Place, Boston 02108 (Tel. 617:727-
3480)

City Weights and Measures Officials:

Agawam 01001 ----- LOUIS D. DRAGHETTI, Inspector, Weights and
Measures, 36 Main Street (Tel. 413:786-0400,
ext. 51)

Cambridge 02139 ----- ROBERT K. LAFFIN, Sealer, Weights and Meas-
ures, City Hall, Room 202 (Tel. 617:876-6800,
ext. 251)

Plymouth 02360 ----- DAVID A. MONTANARI, Sealer, Weights and
Measures, 35 Davis Street (Tel. 617:747-1620)

MICHIGAN

State ----- FRANK C. NAGELE, Weights and Measures Specialist, Department of Agriculture, Food Inspection Division, Fifth Floor, Lewis Cass Building, Lansing 48913 (Tel. 517:373-1060)
G. CULHAM, Inspector, Weights and Measures, 672 Bungo Lake Road, Harrison 48625 (Tel. 517:588-2295)
LAWRENCE M. GOLDIN, Inspector, Weights and Measures, 42210 Parkside Circle, Apt. 210, Sterling Hts. 48078 (Tel. 313:739-2136)

MINNESOTA

State ----- WARREN E. CZAIA, Director, Weights and Measures Division, 1015 Currie Avenue, Minneapolis 55403 (Tel. 612:333-3249)
NORMAN BORCHARDT, Inspector.
ARVID W. FENGER, Senior Inspector
RAY A. THARALSON, Metrologist

City Weights and Measures Officials:

Minneapolis 55415 ----- RICHARD SCULLY, Inspector, Department of Licenses and Consumer Services, City Hall, Room 101-A (Tel. 612:348-2080)

MISSISSIPPI

State ----- J. B. HARDY, JR, Director, Consumer Protection Division, Department of Agriculture and Commerce, State Office Building, P. O. Box 1609, Jackson 39205 (Tel. 601:354-6258)

MISSOURI

State ----- ROBERT D. WITTENBERGER, Program Supervisor, Weights and Measures, Department of Agriculture, P. O. Box 630, Jefferson City 65101 (Tel. 314:751-4992)

City Weights and Measures Officials:

St. Louis 63104 ----- DANIEL I. OFFNER, Commissioner, Weights and Measures, 1220 Carr Lane Avenue, Room 145 (Tel. 314:453-3251)

MONTANA

State ----- GARY L. DELANO, Administrator, Weights and Measures Division, Department of Business Regulation, 805 North Main, Helena 59601 (Tel. 406:449-3163)

NEBRASKA

State ----- STEVE MALONE, Administrator, Weights and Measures Division, Department of Agriculture, 1420 P Street, Third Floor, P. O. Box 94757, Lincoln 68509 (Tel. 402:471-2875)

NEW HAMPSHIRE

State ----- WALTER J. TUSEN, Chief Inspector, Bureau of Weights and Measures, State House Annex, Room 201, Concord 03301 (Tel. 603:271-3700)

NEW JERSEY

State ----- JAMES R. BIRD, Deputy State Superintendent, Weights and Measures, 187 West Hanover Street, Trenton 08625 (Tel. 609:292-4615)
BERNIE D. ARCKIVY, Metrologist
CARL P. CONRAD, JR, Supervisor of Licensing

County Weights and Measures Officials:

Bergen ----- JAMES A. POLLOCK, Superintendent, Weights and Measures Department, 355 Main Street, Hackensack 07601 (Tel. 201:646-2729)

Burlington ----- EARL D. GASKILL, Superintendent, Weights and Measures, 54 Grant Street, Mount Holly 08505 (Tel. 609:267-3300, ext. 210)

Camden ----- A. J. FRANCESCONI, Superintendent, Weights and Measures, County Courthouse, Room 306, Camden 08101 (Tel. 609:757-8196)

Cape May ----- A. DAVID GIDDING, Superintendent, Weights and Measures, 6807 Seaview Avenue, Wildwood Crest 08260 (Tel. 609:522-4861)

Cumberland ----- GEORGE S. FRANKS, Superintendent, Weights and Measures and Consumer Protection, 800 East Commerce Street, Bridgeton 08302 (Tel. 609:451-8000, ext. 296)
NICHOLAS DIMARCO, Deputy Superintendent (Tel. 609:451-0118)

Gloucester ----- ROBERT J. MORRIS, Superintendent, Weights and Measures, County Building, 49 Wood Street, Woodbury 08096 (Tel. 609:845-1600, ext. 252)
JOSEPH SILVESTRO, Assistant County Superintendent

Mercer ----- RALPH M. BODENWEISER, Superintendent, Weights and Measures, County Administration Bldg., 640 South Broad Street, Trenton 08607 (Tel. 609:989-6579)

Middlesex ----- JOHN M. CHOAMIN, Superintendent, Weights and Measures, 841 Georges Road, North Brunswick 08902 (Tel. 201:246-6298)

Monmouth ----- WILLIAM I. THOMPSON, Superintendent, Weights and Measures, Hall of Records, Room 300, Freehold 07728 (Tel. 201:431-7363)

Salem ----- ROBERT B. JONES, Superintendent, Weights and Measures, P. O. Box 24, Salem 08079 (Tel. 609:935-3152)

Warren ----- GERALD E. CONNOLLY, Superintendent, Weights and Measures, Court House, Belvidere 07823 (Tel. 201:475-5087)

NEW MEXICO

State ----- CHARLES H. GREENE, Chief, Division of Markets, Weights and Measures, Department of Agriculture, Box 3170, Las Cruces 88003 (Tel. 505:646-1616)

NEW YORK

State ----- JOHN J. BARTFAL, Director, Bureau of Weights and Measures, Building 7-A, State Campus, 1220 Washington Avenue, Albany 12235 (Tel. 518:457-3452)

STEWART SIMON, Assistant to the Director

County Weights and Measures Officials:

Monroe ----- LOUIS P. ROMANO, Sealer, Weights and Measures, 1157 Scottsville Road, Rochester 14625 (Tel. 716:436-1330)

City Weights and Measures Officials:

New York City 10013 ----- JAMES J. WHITE, Deputy Commissioner, Department of Consumer Affairs, 80 Lafayette Street (Tel. 212:566-5007)

NORTH CAROLINA

State ----- MARION L. KINLAW, Director, Consumer Standards Division, Department of Agriculture, P. O. Box 26056, Raleigh 27611 (Tel. 919:829-3313)
TOM SCOTT, Chief, Measurement Standards Section
GORDEN S. YOUNG, Metrologist, P. O. Box 25065 (Tel. 919:829-3246)

OHIO

State ----- KENNETH R. ADCOCK, Chief, Division of Weights and Measures, Department of Agriculture, Reynoldsburg 43068 (Tel. 614:866-6361)

County Weights and Measures Officials:

- Auglaize ----- FERD WELLMAN, Inspector, Weights and Measures, 309 South Main, New Knoxville 45871 (Tel. 419:753-2021)
- Clark ----- JAMES S. POWERS, SR., Inspector, Weights and Measures, County Bldg., P. O. Box 1325, Springfield 45502 (Tel. 513:324-5871)
- Cuyahoga ----- FRANK KOSITS, JR., Supervisor, Weights and Measures, 1464 West 117th Street, Lakewood 44107 (Tel. 216:226-7045)
- Huron ----- W. DALE EBINGER, Deputy Sealer, Weights and Measures, One East Main Street, Court House, County Auditor's Office, Norwalk 44857 (Tel. 419:668-8643)
- Logan ----- HAROLD K. TURNER, Supervisor, Weights and Measures, Court House, Bellefontaine 43311 (Tel. 513:585-4681)
- Montgomery ----- ROBERT J. HECKMAN, Supervisor, Weights and Measures, West Third at St. Mary's Street, County Administration Building, Dayton 45401 (Tel. 513:225-4315)
- ROBERT W. OMLOR, Inspector
ROBERT L. RODERER, Auditor (Tel. 513:225-4333)

City Weights and Measures Officials:

- Akron 44304 ----- ANTHONY J. LADD, Superintendent, Weights and Measures and Consumer Protection, 69 North Union Street (Tel. 216:375-2612)
- Cincinnati 45214 ----- LEONARD B. FRANK, Superintendent, Markets, Weights and Measures, 2147 Central Avenue (Tel. 513:352-3135)
- Dayton 45402 ----- CLIFFORD W. ROBERTS, Inspector, Weights and Measures, 960 Ottawa Street, (Tel. 513:225-5304)

OREGON

- State ----- KENDRICK J. SIMILA, Administrator, Weights and Measures Division, Department of Agriculture, Agriculture Bldg., Salem 97310 (Tel. 503:378-3792)

PENNSYLVANIA

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