REPORT OF THE

53d NATIONAL CONFERENCE ON WEIGHTS AND MEASURES 1968

U.S. DEPARTMENT OF COMMERCE
NATIONAL BUREAU OF STANDARDS
SPECIAL PUBLICATION 311

Report of the 53d National Conference on Weights and Measures 1968

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., June 17, 18, 19, 20, 21, 1968

Report Editor: R. L. Koeser

United States Department of Commerce
Maurice H. Stans, Secretary

National Bureau of Standards
A. V. Astin, Director

National Bureau of Standards Special Publication No. 311
Issued March 1969

For sale by the Superintendent of Documents, U.S. Government Printing Office
Washington, D.C. 20402 - Price $1.25

Abstract

This is a report of the proceedings (edited) of the Fifty-third National Conference on Weights and Measures, sponsored by the National Bureau of Standards, held in Washington, D.C., June 17–21, 1968 and attended by State, county, and city weights and measures officials and representatives of the Federal Government, business, industry, railroads, and associations.

Key words: Conference, weights and measures—laws, weights and measures—regulations, weights and measures—technical requirements, weights and measures—history, weights and measures.

Library of Congress Catalog Card No. 26–27766

CONTENTS

(Note: Reports of the Standing, Annual, and Executive Committees, and the Treasurer's Report, have been arranged together, beginning on page 103, for easier reference.)

AFTERNOON SESSION—WEDNESDAY, JUNE 19, 1968

MORNING SESSION—THURSDAY, JUNE 20, 1968

EXECUTIVE COMMITTEE REPORTS:

REPORTS OF STANDING COMMITTEES:

REPORTS OF ANNUAL COMMITTEES:

OFFICERS AND COMMITTEES

OFFICERS

(As elected by the Fifty-second National Conference to serve during the Fifty-third)

President: A. V. Astin, Director, National Bureau of Standards.
Executive Secretary: M. W. Jensen, Chief, Office of Weights and Measures } *Ex officio*

Chairman: C. C. Morgan, City Sealer of Weights and Measures, Gary, Indiana.

Vice Chairmen:

N. Berryman, Director, Division of Standards, Department of Agriculture, Tallahassee, Florida.

R. T. Williams, Director, Consumer Service Division, Department of Agriculture, Austin, Texas.

J. T. Daniell, Deputy Sealer, Bureau of Weights and Measures, Detroit, Michigan.

D. E. Konsoer, Director, Bureau of Weights and Measures, Food Division, Department of Agriculture, Madison, Wisconsin.

Treasurer: J. F. True, State Sealer, Division of Weights and Measures, State Board of Agriculture, Topeka, Kansas.

Chaplain: R. W. Searles, County Inspector of Weights and Measures, Medina County, Ohio.

(As elected by the Fifty-third National Conference to serve during the Fifty-fourth)

A. V. Astin, *President*
M. W. Jensen, *Executive Secretary* } *Ex officio*
S. H. Christie of New Jersey, *Chairman*
W. C. Hughes of Massachusetts, *Vice Chairman*
J. F. Lyles of Virginia, *Vice Chairman*
R. L. Sharp of Texas, *Vice Chairman*
C. B. Whigham of New Mexico, *Vice Chairman*
C. C. Morgan of Indiana, *Treasurer*
R. W. Searles of Ohio, *Chaplain*

EXECUTIVE COMMITTEE

(As elected by the Fifty-third National Conference)

A. V. Astin
M. W. Jensen
S. H. Christie
W. C. Hughes
J. F. Lyles
R. L. Sharp
C. B. Whigham
C. C. Morgan
R. W. Searles
} *Ex officio*

L. A. Gredy
W. H. Naudain
M. H. Becker
F. D. Morgan
L. B. Frank
P. Grassi
J. C. Boyd
H. K. Sharp
J. A. Hughes
K. G. Hayden

STANDING COMMITTEES

(As constituted at the conclusion of the Fifty-third National Conference, the personnel of each of the standing committees are as listed. The remaining term of office for each committee member, in years, is shown in parentheses following each entry.)

EDUCATION*

J. I. Moore of North Carolina, *Chairman* (3)
A. D. Rose of California (1)
W. I. Thompson of New Jersey (2)
B. A. Pettit of District of Columbia (4)
G. E. Mattimoe of Hawaii (5)

LAWS AND REGULATIONS*

W. A. Kerlin of California, *Chairman* (3)
J. H. Wilson of Missouri (1)
J. F. Lyles of Virginia (2)
G. L. Delano of Montana (4)
R. W. Richards of Pennsylvania (5)

SPECIFICATIONS AND TOLERANCES*

H. D. Robinson of Maine, *Chairman* (1)
R. L. Thompson of Maryland (2)
R. Rebuffo of Nevada (3)
D. E. Konsoer of Wisconsin (4)
J. C. Mays of Florida (5)

COMMITTEE ON LIAISON WITH THE NATIONAL GOVERNMENT*

J. H. Lewis of Washington, *Chairman* (2)
K. C. Allen of Ohio (1)
R. C. Primley of Michigan (3)
E. E. Wolski of New York (4)
R. W. Brevoort of New York (5)

ANNUAL COMMITTEES ACTING ONLY DURING THE FIFTY-THIRD CONFERENCE

Nominations: R. E. Meek of Indiana, *Chairman;* J. E. Bowen of Massachusetts; V. D. Campbell of Ohio; S. H. Christie of New Jersey; H. E. Crawford of Florida; J. H. Lewis of Washington; J. F. True of Kansas.

Resolutions: M. L. Kinlaw of North Carolina, *Chairman;* M. H. Becker of California; W. E. Czaia of Minnesota; E. T. Hunter of New York; D. I. Offner of Missouri; R. W. Richards of Pennsylvania; R. L. Sharp of Oklahoma.

Auditing Committee: L. H. DeGrange of Maryland, *Chairman;* L. D. Holloway of Idaho; H. E. Smith of California.

---

*M. W. Jensen, Executive Secretary of the Conference, is *ex officio* nonvoting secretary to each committee.

COMMITTEE MEETINGS, MONDAY, JUNE 17, 1968

All day Monday was set aside for meetings of the Conference committees. Announcements of these meetings were carried in the National Conference Announcement and in the Conference Program.

The Conference committees that met on Monday morning were the Executive Committee, the Committee on Education, and the Committee on Specifications and Tolerances. The Committee on Liaison with the National Government and the Committee on Laws and Regulations met Monday afternoon.

All final reports of the Standing and Annual Committees can be found beginning on page 103.

REPORT OF THE FIFTY-THIRD NATIONAL CONFERENCE ON WEIGHTS AND MEASURES

MORNING SESSION—TUESDAY, JUNE 18, 1968

(C. C. Morgan, *Chairman*, Presiding)

The invocation was delivered and the memorial service for departed members was conducted by the Conference Chaplain, Rev. R. W. Searles of Ohio.

Rev. Searles led the delegates in the Pledge of Allegiance.

ADDRESS

by L. C. McQuade, *Assistant Secretary for Domestic and International Business, U.S. Department of Commerce*

I would like to discuss with you today a few things which are going on in Government in the area of economics and social policy, and which I think might be interesting to you.

The main topic of interest to all of us is: Just where is this great national economy that provides us with our goods, services, and jobs going?

Inflation.

In this respect, I think the key problem which troubles everybody here in Washington and elsewhere in the nation is that of inflation. We face the fact that in the first quarter of the year our gross national product rose by 20 billion dollars—a growth rate, on an annual basis, of almost 10 percent. For the huge economy of the United States, that is a fantastic growth rate indeed. In fact, the 20 billion dollars is more than the gross national product of a good number of major countries in the world. Keep in mind, that is just one-quarter of a year's increase in the gross national product of the United States.

Of this increase which occurred in the first quarter of this year, about 4 percent would be attributable to price rises, so that the real

rate of growth is less than the apparent rate of growth because of inflation. It is the assumption of most economists that once we start growing at a rate over 14 or 15 billion dollars a quarter, a portion of the growth will come out of our pockets in the form of inflationary price rises. Therefore, the most difficult problem that faces our country today is what should we do about inflation.

Basically, the consumer is confronted with the fact that, even though from time to time he gets pay increases, prices for the items he buys also go up. (The consumer price index rose by 1.1 percent for the first quarter of 1968; and the wholesale price index for the same quarter was the highest since mid-1965). When prices rise as fast as or faster than pay increases, the consumer ends up in a neutral or worse position than he was before receiving his pay increases. Consequently, the strong, full-employment economy we now enjoy has the tendency to undercut the full benefit of our prosperity through inflation.

There are two ways you can fight inflation successfully. *First*, by fiscal policy—taxes and budgetary controls set by governments; *second*, by monetary policy. I think all of you are fully aware that we have a very tight monetary policy at the moment. The Federal Reserve Board and the willing borrowers have pushed interest rates up to fantastic levels compared to what we are used to in this country. It appears that if there is no action taken on the fiscal side soon, monetary policy might get even tighter, with even more difficult consequences for the nation as a whole.

If interest rates go up, mortgage rates get to be very severe and the availability of credit for mortgages becomes very tight. The housing industry thus tends to feel the brunt of heavy monetary policy first. This affects every one of us because housing is an important factor in every community.

So, the President has put forward fiscal measures to the Congress with the objective of lowering the great pressures on the economy which come from high levels of spending.

To cut down this high level of spending by consumers, the President has proposed a tax increase. I might add that this tax increase is nowhere near the size of the 1964 tax *reduction*. The main purpose of a tax increase would be to take dollars out of the spending stream which goes mainly through consumer and industry hands. As a complement to the tax increase, Congress is asking for a cut in the level of Federal Government spending. The level of cut asked by the Congress is six billion dollars. This issue will be decided when voted upon later this week.* This will be a critical moment in helping to determine what course the economy is going to take during the rest of the year.

---

*Editor's Note: The tax increase and spending cut referred to have been enacted into law after the date Mr. McQuade's remarks were delivered.

Let me briefly condense the main reasons why I think that the vote later this week will be of great importance to all of us in the economy.

First, if we raise taxes and cut Federal spending, we will ease the rate of inflation, slow down the upward price spiral, and achieve a fairly healthy rate of growth without price inflation.

Second, we can ease the credit squeeze which is now being imposed by the Federal Reserve Board, and lower interest rates.

Third, we can slow down the pace at which imports are coming into the country and ease the Nation's balance of payments problem.

Labor-Management Relations.

I would next like to discuss the problems we face in labor-management relations. The Full Employment Act of 1946 required the Federal Government to seek to maintain full employment in the economy. When the nation has close to total full employment—three and a half percent is the national unemployment average today—it faces the problem that the balance of power in the wage-setting relationship tends to shift, and there is a high likelihood that wage costs will tend to rise faster than productivity. This increases the likelihood of price rises, with the attendant detriments to the national economy. For example, during the airline strike of a year and a half ago, the engineers who were out on strike could get comparable or better wages by moonlighting on other jobs. There were that many jobs around. They could afford to wait pretty much forever before they would find it economically desirable to go back to work at anything other than the wage increase which they sought. Management, on the other hand, was losing revenue every day, and the public was seriously inconvenienced.

I am not saying what the equities might have been, but from a national economic point of view it is clear we got a wage rate which exceeded increases in productivity. And if that occurs over time, it makes the United States, as a national economy, less efficient and fosters "cost-push-inflation." Management, in an effort to cover its rise in cost, will tend to push its prices up with the only deterrent being competition. But competition is not the case when you have industry-wide bargaining pushing up the cost factor, and therefore prices.

The Administration tried to adopt wage-price guidelines to bring home to management and labor the fact that there is a futility in having costs rise faster than productivity. Both sides were asked to exercise restraint. As some economists ungraciously put it, they turned out to be goal-posts, rather than guideposts, in the sense that they became the target, the goal, the floor, for a wage negotiation, rather than the upper limit of a wage negotiation. That policy—dramatically illustrated in the airlines case—was not effective in holding the line on wage increases under the conditions of a fully employed economy with lots of inflationary pressures.

Looking at 1968 in real terms, we just saw a labor-management settlement in the aluminum industry which resulted in a seven percent increase in the cost of labor, more or less, depending upon your statistics. We also face the prospects of steel negotiations later this fall. High domestic steel prices have already resulted in extraordinarily high imports of steel with adverse effects on our balance of payments and a degree of trepidation for the economy as a whole. It is important that we get through the current negotiations without a strike and without having a round of wage increases (1) tending further to price steel out of the international market and (2) boosting the economy as a whole on a continued upward spiral.

Finally, a labor problem arises with respect to public employees. The right to strike, of course, is a classic part of the American tradition. Any attempt to attack it brings on a loud protest.

On the other hand, we are all acutely conscious of the importance to the community of some of the services performed by public employees. Health and safety are maybe the foremost and almost incontestable examples. The garbage strike in New York really put the question of health to us in a very direct way. Yet forbidding strikes could cause other problems. How can equity be achieved for teachers, nurses, and others if they do not have an effective way to express themselves—some way to exert pressure upon the relevant public employer to recognize their claims? I do not know of a really effective answer to this.

Legal prohibition against striking, in many instances, has been so severe as to be unenforceable. The Condon-Wadlin Act of New York is an example. Also, the added ingredients of emotion and political power have kept the nation from figuring out how equity can be achieved while at the same time public services are maintained in a reasonable way.

The nation as a whole will see some significant changes in the area of labor-management negotiations and the techniques for setting wage rates and conditions of employment over the next decade. If will be very difficult to do politically, but intrinsic forces will compel us to make some changes in the rules of the game. Therefore, I would say, this is an area where a lot of hard thinking has been and should continue to be undertaken.

Hard-Core Unemployed.

Let's turn to the very pressing problem of hard-core unemployment. It is crystal clear that unemployment should be kept low on the whole. But, when we say we have a three-and-a-half percent unemployment rate in the nation, this is not very interesting news for the many people we call the hard-core unemployed. They come close to being unemployable. Even more dramatic is the fact that if there is a slump,

which would no doubt cause a fall-off in the employment rate, the people who get hit worst are those people with low skills, such as the Negroes, women, and generally people with limited educations. These are the people who feel the gyrations in the economy most. Even at the highest employment rates for the nation as a whole, these people still flounder in their special pools of unemployment, as much as 14 and 15 percent or more.

Should we take the jobs to the workers, or should we take the workers to the jobs? America has become a great migrant society. Almost 500,000 people a year move from rural areas to metropolitan areas. At the same time, about 62 percent of all new plants built in this country have been built outside the central cities. What should we do about it? By 1975, if the present pattern of migration exists, the 25 largest metropolitan areas in the country, outside California, will be short 3 million jobs for such migrants. In short, jobs are being created outside of the metropolitan areas while the people who have most difficulty getting employment are moving into the metropolitan areas.

This complicates the basic problem of getting people who have fallen out of high school, and who have not developed appropriate skills, into the employable work force. In this area, I think, important new experiments in the relationship between the Federal Government and local communities may come to the rescue. For instance, the Job Corps trains people. The Commerce Department's regional economic development programs promote local economies in which growth has lagged behind that of the rest of the country, and thereby create jobs in areas outside of the central cities. We hope that by creating jobs where people now live, they will wish to stay in those areas instead of seeking opportunities in Chicago and New York and other cities. These are but a few of the recent techniques which constitute institutional experiments seeking to bring the benefits of the Federal Government to local areas and also achieve the maximum useful involvement of the local people in determining what will occur. It is imperative that good working relationships exist between Federal and local officials if success is to be achieved. Out of these experiments I expect some valuable progress toward the new "creative Federalism" which President Johnson has been seeking.

Such experimentation has not, however, been confined to Federal, State, and local Governments, but is proceeding with the private sector as well. One creative effort to use private enterprise in dealing with the nation's problems is the National Alliance of Businessmen. This effort, conceived and born in the Commerce Department, is now run by a group of distinguished businessmen headed by Henry Ford II. They have adopted 50 cities in the United States and have sought to create, in the first year, something on the order of 300,000 new jobs for the hard-core unemployed. This is putting the responsi-

bility where it belongs—with the employers—to work out ways to create jobs and train the hard-core unemployed so they can take and hold them.

The program is set up so that, in each of the major cities involved, business organizations working with the local government will get the benefit of the manpower development and training funds of the Department of Labor, and other assistance from the Federal Government. But the show is the businessmen's. Through their effort, we expect that many people who might otherwise be unproductive citizens or welfare recipients or breeders of negative drags upon the economy in the forms of riots and crimes will become useful working citizens with a better life.

Consumerism.

The last thing I would like to mention today is a problem with which you are closely associated: protecting the consumer. The basic premise of the United States, of course, is that the private sector ought to decide on the allocation and production of goods and services through the competitive price system and there ought to be a minimum interference in that process by the Government. However, there are three basic areas in which it may not be possible to achieve acceptable standards without some involvement by governments.

1. Establishing rules of the game, such as the anti-trust laws or weights and measures regulations. This creates a medium for people to operate in.
2. Issuing health and safety regulations to protect people, for example, against impure food or highly flammable garments.
3. Preventing fraud and deceit, such as the Securities and Exchange Commission seeks to do in the sale of securities.

But, I see a risk that this emphasis on "consumerism" can become direct interference on the marketplace—telling people what to do, instead of setting rules for the game within which they may function. If this should happen, there would be some damage to the effectiveness, efficiency, creativity, and bountifulness created by the competitive enterprise system which has characterized the United States and helped to make ours such a successful economy.

Conclusion.

To conclude: First, I believe that the "mix" between the Federal Government, local governments, and the private sector in dealing with the problems of our society and economy will be affected importantly by the ingenuity and effectiveness with which private and local forces are effective in meeting these grave problems on their own. To the extent that they fall short of the mark, the likelihood of a Federal role increases.

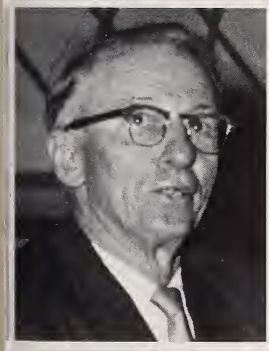
Second, I think the United States has been experimenting in the last few years to find new ways to use the Government, both Federal and local, and the private sector, to deal with a whole variety of important national problems. We are in a stage of experimentation. President Johnson calls it "creative Federalism." No one can define precisely what that means; but I envision that, after this period of experimenting, we will end up with several useful techniques for dealing with national problems in a way which will allow us to have our cake and eat it too—that is, to benefit from the Federal Government's involvement and at the same time to avoid many of the negatives which can go with such involvement.

Third, I see the need for some adjustments in the "system" so that we can equitably divide the output of the nation between labor and management without pricing the United States out of the world market and without choking off that great cornucopia, the American economy.

Finally, the basic strength of the national economy is the key to our ability as a nation to meet our national problems and aspirations. We must be very careful, in the course of trying to achieve our other national objectives, that we do not undercut our economic strength. Among the difficult problems that face us is the need to learn how to maintain a full employment economy without serious inflation.

ADDRESS OF CONFERENCE PRESIDENT

by Dr. A. V. Astin, *Director, National Bureau of Standards*



I find it a great pleasure to be back with you again at the 53d National Conference. I was out of the country a year ago and had to miss the 52d one, the first Conference I have missed since I became the Director of NBS and the Conference President.

It is my privilege and custom at these meetings to report to you on the general status of activities within the National Bureau of Standards. This year I should like to describe the current activities within the National Bureau of Standards in terms of the national perspective.

The NBS has a twofold mission. The first and oldest is to provide the national leadership for the measurement system. Here the function is to provide the national basis for uniform, compatible, reliable, physical measurement. Such measurement is essential, as you know, to the orderly exchange of goods and services in commerce; it is essential to the efficient functioning of our mass production industry, particularly the interchangeable parts aspect; it is essential to the effective

communication among scientists with quantitative information; and it is necessary to have this central basis if we are to apply effectively the results of science and technology to achieve the national goals.

Our second general responsibility is concerned with facilitating application of technology to the achievement of various national goals. Here our work is primarily with other agencies of the Federal Government. We have a unique statutory responsibility to provide scientific and technical advice to other Government agencies and, in fact, over 40 percent of our budget comes to us from other Government agencies for services we render them.

Here we seek to help other agencies make the maximum use of new developments in technology, and to facilitate the transfer of this technology to the economy. In this connection we operate the Clearinghouse for Federal Scientific and Technical Information, accumulating in one place report literature and then making these reports readily available to the American public.

In another aspect, we have a responsibility to assist other Government agencies in the most effective utilization of modern electronic data-processing systems and to develop standards for these systems to improve their efficiency and compatibility. This responsibility was given to us by law approximately three years ago.

To carry out these responsibilities, we have a staff of about 4,000 people, 3600 of whom are full-time, permanent employees, and about 1400 of these are professional scientists and engineers.

We have an overall operating budget this year of about $60 million, with between $32 and $33 million coming to us directly from the Congress as appropriations, about $20 million coming to us as transfers from other Government agencies, and the balance in fees we collect from the public for services rendered, such as calibration of instruments, sale of documents, and sale of standard reference materials.

We carry out our activities in four locations, the principal one being at Gaithersburg, Maryland. We still have a small group at our old site on Connecticut Avenue here in the District of Columbia. Our Clearinghouse is located in Springfield, Virginia, and our radio standards and cryogenic engineering work is carried out in Boulder, Colorado.

Last year you visited our new facilities at Gaithersburg. We began the planning of the new site more than 12 years ago, began construction in 1961, and began occupying the buildings in 1963. We planned construction in four phases, and are now in the fourth and final phase. Three special purpose laboratories—the acoustic laboratories, chemical engineering laboratories, and concrete materials laboratories—will be occupied this summer, and the fourth and final laboratory, the fluid dynamics laboratory, will be finished about a year from now.

Turning now to our overall fiscal situation, I have given you the general figures. We have been operating under a very tight budgetary situation over the past several years. I think this is understandable in view of the problems outlined to us by Assistant Secretary McQuade, but it has made it necessary for us in the Bureau to do a considerable amount of belt tightening, careful selecting of priorities, and weeding out some of our less important programs. We feel that everything we do contributes in some way to the national economy but, in general, there are more urgent programs and less urgent programs; we have been trying to put our focus on the more urgent.

In this process, it has been necessary for us to eliminate over the past years some 65 positions in order that we can focus our available resources more effectively upon those things we consider the more pressing and those things which we think will provide the greatest stimulant for our economy.

We have made a number of studies to help us develop guidelines for determining optimum program structures. These studies have been quite revealing. They have demonstrated, in some of the things we have selected to observe, that most of the activities of NBS returned benefits to the nation worth ten to more than a hundred times the cost of providing the service. This return can be expressed in the form of efficiencies in our industrial sector, in the form of increases to our gross national product, or in the form of increased revenues to the Treasury. But the return which we have been able to identify convinces us that the programs of the National Bureau of Standards are of great importance to the continuing growth and vigor of our nation and are investments which will pay off handsomely in the future.

Over the past year we have been given additional responsibilities which we are just now implementing. The first of these is the Flammable Fabrics Act, which considerably enlarges the responsibility given to us in 1953, to include not only all articles of clothing, but household furnishings that are potential fire hazards.

Here, our initial responsibility arose because of national concern over tragic deaths due to so-called "torch" sweaters and "explosive" garments. These types of articles of clothing were prohibited by the law of 1953, and this prohibition has been effective in reducing deaths.

However, we found that there were still many tragic deaths due to flammability of articles of clothing not covered by the original standard. This indicated clearly that the previous standard had to be improved and so the Flammable Fabrics Act resulted.

It is our earnest desire to move ahead rapidly on this. The new law requires us to develop evidence and demonstrate in a convincing way that a hazard exists. We soon will publish the procedures for determination of hazardous areas and then develop procedures also for the issuance of standards after the hazard is identified.

The second new responsibility concerns the Fire Research and Safety Act of 1968. The NBS has had, for many years, a small program on the fire-resistant properties of building materials. But this, we felt, had been inadequate to deal with the nation's total fire problem.

I can summarize very briefly one of the major concerns leading to the passage of the Act and this is the appalling loss of life due to fire in this country. We lose, in addition to about two billion dollars worth of property, approximately 12,000 lives a year. This rate of loss, per capita, is more than twice that of any other technologically advanced nation in the world. For example, our per capita loss due to fire is approximately four times that of Japan. Most other countries in the world, those with the smaller per capita loss rate, have national fire programs. This is the only technologically advanced country in the world that has not had a national fire program. We have one now.

In addition to sponsoring research on the nature, origin, prevention, and control of fire, the new program has five other aspects. There will be (1) a data-gathering program to investigate fires, determine their causes, and find means of prevention; (2) a data analysis and dissemination program so that people who need data on fire losses will have it in a more effective form than they have at present; (3) a public education program to try to cut down the losses due to fire; (4) training programs for firefighters and fire prevention engineers; and (5) demonstration programs for fire services throughout the country so that the best techniques that are developed for preventing, controlling, and extinguishing fire will be made available for fire services throughout the nation in an effective way.

I would now like to take a few minutes to discuss some of the recent program developments that have occurred at the Bureau during the past year.

A recent added responsibility is the Fair Packaging and Labeling Act, which has shown excellent progress under the leadership of your competent Executive Secretary, Mac Jensen. During the past year, we have taken the tack that the best way to achieve a rapid reduction of proliferation in the marketplace is to secure the cooperation of the industrial sector.

With your help, the help of many of the weights and measures officials around the nation, we have collected data on the degree of proliferation. We referred these data to the manufacturers and have gotten most of them, that is, those responsible for more than half of the dollar volume of packaged commodities in the marketplace, to agree voluntarily to take some action without going through the formal legal procedures of declaring undue proliferation.

I think you are to be congratulated for your cooperation with the Office of Weights and Measures in this program. And Mr. Jensen is to be congratulated for the initiative and leadership he has demonstrated.

As I think most of you know, the programs of the National Bureau of Standards are carried out by three Institutes. Here we have had during the past year significant changes in the leadership of our Institutes, having appointed new directors this spring in each of the three.

Dr. Lawrence M. Kushner is now the Director of our Institute for Applied Technology, where our Office of Weights and Measures is located; Dr. John D. Hoffman has been named the Director of our Institute for Materials Research; and Dr. Ernest Ambler has been named the Director of our Institute for Basic Standards. All of these individuals have been career scientists with NBS and we are most pleased that we were able to develop within our organization leaders capable of carrying out the important responsibilities of our Institutes.

Within the Institute for Applied Technology, I am pleased to report that there has been good progress in all areas. I would like to mention just a few of these. In our Building Research Division, we are developing important cooperative programs with the Department of Housing and Urban Development, and making significant studies for the use of performance standards in building materials and systems.

In another area, we are helping HUD on some of the technical construction problems on the rebuilding of parts of Detroit that were destroyed in a riot of a year or so ago.

In yet another area, our Building Research people were able to make a most important contribution to the cleanup of the disastrous damage associated with the ravishing floods in Alaska late last summer. Here there were problems of how to dry out the buildings and how to replace damaged installations before the early freezing of winter set in. Our people made a very simple suggestion that ultimately proved successful. It has been estimated that this suggestion saved Alaskan citizens many millions of dollars through the simple device of warming up their houses in the summertime to about 90 degrees Fahrenheit. This drove the moisture out of the walls and avoided having to tear the walls down and replace the insulation.

Our Center for Computer Science and Technology, which I referred to earlier in my remarks, has made excellent progress during the year, and the first three standards it proposed were issued by the President about three months ago, with the requirement that these become mandatory for use within Government by July 1969.

These standards deal with the alphabet which will be used by all automatic data processing systems. These have to do with converting letters and numbers and symbols to the alphabet of the machine, and with the standards for paper tapes and magnetic tapes which are used to convey this alphabet.

In our Institute for Materials Research we have been very busy in developing new standard reference materials.

For example, in the medical field we issued a standard reference material for cholesterol. Cholesterol tests are extremely important in medical diagnosis, but the lack of uniformity of cholesterol test results destroys much of the usefulness of such tests. We have developed a standard cholesterol sample which is available to hospitals and doctors to be used by them to calibrate their measurement process and thus put this whole process on a more reliable basis.

Similarly, we have issued standard reference materials for carbon dioxide and sulfur dioxide in air as an aid to pollution control measures. It is impractical to issue standards for pollution control unless there is a reliable basis for measurement that is acceptable to all concerned. The way to do this is to have standard reference materials. Our Institute for Materials Research is very much involved in providing such materials.

Our Institute for Materials Research also is moving vigorously into the field of failure analysis, in order to try to develop better analytical measurement techniques that can measure reliability or predict failure and can identify failed materials in order to develop techniques to prevent their recurrence. Here we have been identifying the causes of the failure of the Silver Bridge on the Ohio River and working with local officials there to take steps to prevent a similar occurence in a sister bridge on the river.

Our Institute for Materials Research has made important contributions also to our disarmament program, in coming up with a foolproof technique to permit the identification of missiles. If there is to be any effective international armament control, there must be a reliable way of identifying the materials of missiles, and our people have provided the disarmament agency with this technique.

Moving next to our Institute for Basic Standards, I think the most significant development of the past year arising out of the work of that Institute—at least in part—is the redefinition of the second. The thirteenth General Conference on Weights and Measures—the organization arising from the Treaty of the Meter—met in Paris last October, and redefined the second in terms of an atomic standard. For centuries we have defined the second in terms of astronomical characteristics, first in terms of the rotation of the earth about its axis and, more recently, in terms of the rotation of the earth about the sun.

Neither of these methods is sufficiently reliable or stable to meet modern scientific requirements, and work done in studying atomic transition showed that methods were available to measure time a thousand to ten thousand times more relably and accurately than it could be done by astronomical means.

So the second, since October 1967, is now defined as the duration of 9,192,631,770 periods of the radiation corresponding to the transition between the two hyper-fine levels of the fundamental state of the atom cesium 133.

Our Institute for Basic Standards is actively involved in a variety of investigations associated with lasers. Lasers are of great importance in improving our ability to measure length. They are of great importance in surgery and other medical applications. Here, however, it is important that one have a reliable means of measuring the power output of lasers. We are now in the process of developing a reliable calibration technique for the power output of lasers.

In addition, we are finding that lasers have significance in identifying small traces of materials in liquids and for studying in detail surface defects of certain materials.

There has been one development at the National Bureau of Standards over the past year that I think would be of great interest to this Conference. It is one which I think is essentially flattery by imitation.

A high degree of uniformity in weights and measures activities, enforcement techniques, inspection procedures, model laws, and so on, has been brought about among the 50 States in this country through the work of this Conference. There is great need to achieve a similar degree of uniformity in the area of building codes. Many of the problems associated with the introduction of new technology which would reduce costs and increase effectiveness in buildings, particularly low-cost housing, are hampered by the great variety of building codes that are in existence throughout this country.

We have worked with a few States to see if the effective pattern of the National Conference on Weights and Measures would have a parallel in the building codes field. As a result of this, early in May of this year there was called the First National Conference of State Building Code Officials in Washington. Approximately 30 States participated in this Conference. I think it is too early to say whether it will match the success of the National Conference on Weights and Measures, but at least it is making a start.

Whether this Building Code Conference will be able to deal with the problem involved we do not know. At any rate, the National Bureau of Standards is interested in working with them to see if we can make progress in reducing the proliferation of building codes by providing a mechanism for State building code officials to work together and with us.

In the national weights and measures field, I am pleased to report steady progress in the distribution of standards to the States. Nine of the first 10 sets of new State standards have been delivered. The next 10 are nearing delivery.

I have also had the privilege of attending the presentation ceremonies in seven of these first nine; I would like to be able to go to all of them and I will as far as I can, but I have been most pleased by the energy and the talent that the States are putting into building new laboratories to house the equipment and to permit the effective utilization of these new standards.

I have been impressed by the dedication of the staff associated with this program and I am sure that, from what I have seen in the seven States I have visited, this new program of better State standards is a worthwhile activity and will do much in promoting uniformity and reliability of measurements throughout the country.

In working with you in the Conference, I am continually impressed by the fact that the work of this Conference could not succeed at all unless each of you were active participants in the work of the Conference—through the committees, through applying Conference recommendations in your own States when you get back, through bringing to our attention problems which need to be solved, and then working with us in developing techniques for the solution of problems.

Much of your work is done in committees. It is my pleasure at this time to announce the appointment of four new members to the four standing committees of the Conference. All of these appointments are for five-year terms.

First, the Committee on Education. I am appointing Mr. George E. Mattimoe of the State of Hawaii to succeed Mr. L. A. Gredy of Indiana.

On the Committee on Specifications and Tolerances, I am appointing Mr. John C. Mays of the City of Miami, Florida, to succeed Mr. John L. McCarthy of Boston.

On the Committee on Laws and Regulations, I am naming Mr. Richard W. Richards of the State of Pennsylvania to succeed Mr. Lawrence Barker of West Virginia.

Finally, on the Committee on Liaison with the National Government, I am naming Mr. Richard W. Brevoort of the City of New York to succeed Mr. R. J. Fahey of Chicago.

In making these appointments, I would like to extend my sincere appreciation to the individuals they are replacing. Your work on these committees has been of great value to the Conference and should be an example to your successors.

Finally, I would like to renew my offer of continued cooperation and support from the National Bureau of Standards for the work of this Conference. It is our conviction that our work in weights and measures is purely academic unless it bears fruit in the work of all of the weights and measures officials on the firing line. New developments by us, better standards by us, are of no consequence unless we have a proce-

dure so that you can use these new techniques and new instruments in the field.

So, you bring to us your problems, we will do all we can to work with you in solving them, and together I am sure that we can make the weights and measures movement of this country one of the achievements of our time.

PRESENTATION OF HONOR AWARDS

Dr. Astin presented Honor Awards to members of the Conference who by attending the 52d Conference in 1967, reached one of the four attendance categories for which recognition is made—attendance at 10, 15, 20, and 25 meetings.

AWARD RECIPIENTS

20 Years

J. T. Kennedy	(Formerly District of Columbia)

15 Years

A. V. Astin	National Bureau of Standards
B. S. Cichowicz	South Bend, Indiana
P. DeVries	Passaic, N.J.
S. J. Dimase	Yonkers, N.Y.
C. E. Joyce	Pillsbury Company
J. Marshall	Natl. Assn. of Dairy Equipment Mfrs.
G. C. Reiley	Aero-Chatillon Corp.
W. I. Thompson	Monmouth County, N.J.
E. F. Wehmann	Neptune Meter Co.
D. H. Williams	Dairy and Food Industries Supply Assn.

10 Years

H. E. Almer	National Bureau of Standards
J. R. Bird	State of New Jersey
M. E. Bone	Hobart Mfg. Co.
C. R. Branch	Petersburg, Va.
G. E. Connolly	Warren County, N.J.
R. J. Cord	Prince George's County, Md.
L. L. Elliott	Everett, Mass.
D. F. Hummel	Burlington County, N.J.
E. C. Karp	Sanitary Scale Co.
F. W. Love	Wayne Pump Co.
L. B. Morton	Montgomery County, Md.
B. A. Pettit	District of Columbia
H. D. Robinson	State of Maine
D. R. Smith	Republic Steel Corp.
F. L. Wall	Measuregraph Co.
G. D. Wilkinson	Howe-Richardson Scale Co.
H. H. Wright	Wayne County, N.Y.

ADDRESS

By D. J. Wickham, *Commissioner, New York State Department Agriculture and Markets*

A couple of fortunate circumstances have given me the privilege of joining you this morning for the first Conference session. The first of those fortunate circumstances occurred at the beginning of 1959 when Governor Rockefeller asked me if I would take the job of Commissioner of Agriculture in New York and I said "yes."

That led to the second circumstance. As Commissioner, I was almost automatically affiliated with the National Association of State Departments of Agriculture, and then—a short time ago—NASDA said, "This fellow hasn't been working hard enough," and so they made me a vice president.

And as vice president of NASDA I get the privilege to come here today and tell you we like the things you are doing.

That isn't all a vice president has to do. It's just one of the good points about the job.

Your Weights and Measures Division of NASDA is five years old now. In those five years, you have made some remarkable strides in approaching your objective: Improved efficiency, effectiveness, and uniformity of administration of weights and measures laws and regulations.

I don't believe anyone can seriously challenge by belief that compliance with these laws and regulations is at an all-time high. This is so because you who are directly charged with responsibility for enforcement are doing the best job that has ever been done in this sharply specialized field.

High compliance comes about in several ways: Improved communication and understanding between the enforcing officer and the special segment of the public he must deal with. Greater respect for the ability and authority of the trained weights and measures man. Recognition that honesty and carefulness are steps to consumer satisfaction. Customer satisfaction is good business and spells bigger profits.

What about the public? The public, becoming increasingly conscious of its collective power as the consumer body, is insistent on getting what it pays for. This can be translated as proving that the more you do, the better you do it, the more the public appreciates you, your work, and what is being accomplished in correct weights and measures.

Of course you are working in the interest of what we call "the people" and for that other part we call "business," although the two are so interwoven and interminably mingled that we can barely separate them except for individual transactions.

That brings me to an observation which I am sure is not unique but merely points up a fact that must be recognized, namely that along with many other aspects of agriculture in the generalized sense, we are right up to our chins in consumer services. Call them consumer protection if you will, but "services" seems to describe these activities more accurately.

The production and distribution of food is agriculture. Agriculture takes in more than that, too, just as weights and measures involves more than food. But food is the item we are all concerned with and I rather suspect that was an influencing factor in assigning weights and measures to departments of agriculture in so many States.

I am aware that there apparently is a trend in some States to separate consumer services from the departments of agriculture and set them up in units of their own. Whenever and wherever this becomes a fact accomplished, I suppose weights and measures leaves the agricultural agency and goes into the consumer bureau, by whatever name it may be designated.

I see nothing but waste in moves of this nature. Waste in experience. Waste in money. Waste in time and duplication of effort.

In my own State there have been ripples or undercurrents of talk in this direction. The truth is we simply don't want or need another department to do a lot of the things we are already doing effectively. This is probably as true in your State as it is in mine.

At least 80 percent of our work is of direct consumer benefit. True, we are losing farmers at a pretty furious rate, but those who remain are among our biggest consumers. They spend three-quarters of their income immediately for input materials.

We are the principal consumer service agency in our State. With all the consumer services we perform, we neither conflict with, nor overlap, the Consumer Fraud Bureau in the Attorney General's office. The consumer functions of the two agencies are completely different.

Our work has evolved over the years into a large measure of consumer helps and we are ready to put our experience on the line and contend that we are the logical folks to continue doing what needs to be done to assure the consumers of happy healthful lives with a minimum fear of adulteration, contamination, or cheating on what they put into their stomachs.

The importance of consumer service by Government increases in direct proportion to the number of articles on the supermarket shelf.

Experts tell us that the 8,000 items on supermarket shelves at the close of last year will increase to 14,000 in the next 12 years. I'm no expert, but I think the increase may be faster than that.

Almost every one of these items will continue to demand our attention. The housewife is becoming more aware of confusing markings every times she goes to market. Legislation—and you—are coming to her aid.

There is such a close relationship between the State departments of agriculture and the weights and measures functions that no just and sufficient reason exists to take them apart, one from the other. Just as there is no good logical reason to remove consumer services from the food division and try to establish them in areas by themselves.

I suppose I have had many predecessors harping on this same theme, but if that is so, I don't mind. The more frogs in the pond, the more noise we can make.

Furthermore, I see unity of purpose in suggesting that weights and measures, and consumer services, belong in departments of agriculture. It is all to the good to seek uniformity in our State weights and measures laws, but isn't it equally good common sense to work for operational uniformity? I think so.

Under our federal system of a National Government and State Governments there have, of course, been changes—many of them—since the days of our founding fathers. Some of the States have even voiced fears that the National Government is encroaching on too many of their prerogatives.

You are aware of some instances of pre-emption in the field of weights and measures. But aside from legislation, it seems to me that we enjoy a happy working relationship between Washington and the various States. This harmony is duly noted. Wherever there is good liaison and cooperation, complements are deserved.

Moreover, I know that your interest in the National Association of State Departments of Agriculture, and in turn, the Association's interest in you, are healthy signs of interdependence and interrelationship. NASDA has only four committees other than those on auditing, resolutions, and nominations, and one of those four is concerned with marketing, transportation, and weights and measures.

This should insure that weights and measures problems get due consideration by the national convention of NASDA.

This 53d National Conference, under the sponsorship of the National Bureau of Standards of the United States Department of Commerce, is off to an auspicious start. The program is excellent. It was good to have been with you for a few minutes and to have been able to let you know that we in agriculture hold you and your work in the highest regard.

ADDRESS

by C. C. Morgan, *Conference Chairman*

As Chairman of the National Conference on Weights and Measures, it is my privilege to extend to each of you a cordial greeting. On behalf of your Officers and Committees, I welcome each and every one of you, to this, our 53d National Conference on Weights and Measures. My desire and hope is that this will be another outstanding and rewarding meeting.

After looking over this large assembly of men and women, dedicated to the course of honest weights and measures, I am reminded of another meeting, smaller in number, but similar in character. This was the 26th National Conference on Weights and Measures held here in 1936. While there were fewer in attendance, there was the same interest and enthusiasm that exists today. It made a deep impression on me, a young neophyte from Indiana, who was there for the first time.

Another new arrival at the 1936 National Conference was W. S. Bussey, Chief of Weights and Measures for the State of Texas. Mr. Bussey came well escorted and displayed real showmanship, when, on behalf of the Governor of Texas, he presented Dr. Briggs, Director of the National Bureau of Standards, and President of the Conference, with a commission as an Honorary Texas Ranger. As badge of this office, Dr. Briggs was given a ranger's "ten gallon" hat.

Today I would like to leave a few thoughts with you. Having served as your vice-chairman, ten years as your treasurer, and on the executive committee, it is surprising to me that some delegates, in their first participation with the National Conference on Weights and Measures, are prone to making snap judgments. Certainly, we have all been guilty of this at one time or another, but such opinions can be most embarrassing. When more complete information is obtained, the speaker often realizes that his first opinion, which he so vigorously set forth or defended, was entirely wrong. During this 53d National Conference of Weights and Measures, I believe we should take our time and study both sides of the question, obtaining the necessary information to make correct judgments.

The National Conference on Weights and Measures, while being an organization with no authority to enforce its recommendations, has been able to accomplish so much in the field of commercial quantity determinations. The Conference is dedicated to the promotion of the principles of fairness, impartiality, uniformity, and equity in all matters pertaining to weights and measures administration.

Training schools held in many State jurisdictions have become invaluable. These schools are conducted by the Office of Weights and Measures, National Bureau of Standards, and cover principally a review of Handbook 44 and testing procedures for weighing and measuring. Inspectors who attend these classes become better informed officials, resulting in the upgrading of this highly specialized service.

It rightfully may be concluded that the responsibilities of the Office of Weights and Measures, of the National Bureau of Standards, are interwoven with the activities and aims of the National Conference on Weights and Measures. The program is planned by the Executive Secretary with the assistance of the personnel of the Office of Weights and Measures. The basic relationship between the National Bureau of Standards and the National Conference is sponsorship by the National Bureau of Standards of a means for the promotion of uniformity among the States in the complex laws, regulations, methods, and testing equipment that comprise regulatory control by the States of commercial weighing and measuring.

Specifications and tolerances are not new. They are as old as trade itself. Even in primitive barter, elementary concepts of specifications, tolerances, and standards were essential. As trade grew beyond the barter system and became more complex, the need for standardized understanding between buyer and seller increased. Many present-day standards are no more formal than common trade practice, while some have been internationally codified by formal agreements between governments.

Even though commercial buying and selling have long been largely based on mutual knowledge of items in commerce, it was not until the principle of *caveat emptor*, or "buyer beware," was generally replaced by a more intelligent atitude toward the consumer, that commerce or business attempted to give specific information. The transition from simple, bulk merchandise, which would be examined and fairly well judged by the consumer, to complex goods in packages emphasized the importance of consumer information. With self-service the established method of buying, the label becomes the spokesman for the product and its manufacturer. We hope the "Fair Packaging and Labeling Act" will be a big step toward enlightening the buying consumer. The net quantity of contents in terms of weight, measure, or numerical count, shall be separately and accurately stated in a uniform location upon the principal display panel.

It's great to have a feeling of confidence in others. This confidence is confirmed by the excellent work of our many committees. Mr. William Thompson, Chairman of the National Conference Committee on Education, deserves special mention for his effort on National Weights and Measures Week. It was the tenth observance of the "Week." The primary purpose of the "Week" is to inform the public of the in-

portance of weights and measures and to give recognition and appreciation to those who valiantly serve the public interests in weights and measures quantity control efforts. This year again, the Scale Manufacturers Association, *Scale Journal*, and others, were very cooperative in furnishing pamphlets, posters, window stickers, and display materials. An active and hard-hitting promotion of the week creates much satisfaction, both officially and personally. It has been demonstrated in many communities that a cultivated public support of weights and measures can provide the stepping stone for a community to meet its full responsibilities. When that is done, every official in the department, as well as each citizen, benefits. National Weights and Measures Week provides a golden opportunity for every State, county, and city to participate and receive proper recognition.

During my term as chairman, I have been privileged to attend other weights and measures conferences, including the annual meeting of the 22d Southern Weights and Measures Association, held in Miami Beach. Over 250 people attended this meeting, representing 28 states and the District of Columbia. Highlights of the conference included the annual trade party on Tuesday evening, and the poolside luau on Wednesday evening.

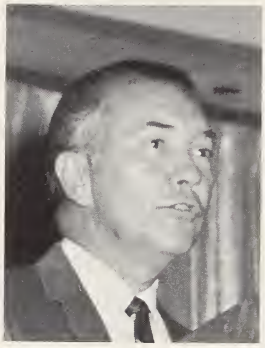
In conclusion, may I say that this is your Conference, and therefore you should give it every effort, to continue the success which it has achieved by the contributions of so many good public servants in weights and measures, who have freely given their time and talents over the years. I want to express my sincere appreciation for the cooperation I have received from the officers and members of the National Conference while serving as your Chairman during this year. In particular, I want to acknowledge the untiring efforts of your Executive Secretary, Mr. Jensen, and his staff, in looking after the interests of the Conference throughout the year, and handling the countless details connected with this meeting. We are beginning this morning the proceedings of this, our 53d Conference. With your attendance and participation, it will be a success for all of us.

AFTERNOON SESSION—TUESDAY, JUNE 18, 1968

(J. T. Daniell, *Vice Chairman*, Presiding)

MAXIMUM EFFECTIVENESS WITH LIMITED RESOURCES

by M. H. Becker, *Director, Los Angeles County Weights and Measures, Los Angeles, California*



I hope that my presentation this afternoon will not qualify me as a crackpot with a panacea for all the problems in weights and measures enforcement.

I sincerely hope that what I have to say will stimulate individual though and analysis in reducing or holding the line on the ever-increasing costs of providing weights and measures protection.

Before I begin, I would like to state that the material which I am about to discuss is not intended to be critical or derogatory to any individual sealer's policies on weights and measures or the laws and regulations under which his jurisdiction may operate.

The world that we are living in is changing at a rapid pace, perhaps too fast. Nevertheless, if we as weights and measures officials are to keep pace with these changes, we must force ourselves to review present weights and measures enforcement patterns in light of today's and, in particular, tomorrow's challenges.

The question we should be constantly asking ourselves is, "How can I as a weights and measures official achieve maximum effectiveness with minimum resources?"

My jurisdiction, like many other jurisdictions throughout the country, is experiencing continued population and business growth, but with the costs of local government increasing at a faster rate than revenue. As a consequence, continued austerity budgets for many jurisdictions have resulted in work loads far exceeding the capacity of both personnel and equipment operating under traditional weights and measures enforcement patterns.

Our primary function is to see to it that equity prevails in all commercial transactions involving determinations of quantity. The de-

livery of full weight and measure and the elimination of fraud and misrepresentation have been objectives in commercial transactions from the beginning of quantity determination. And to this end our efforts should be directed.

To successfully achieve our primary function, I believe we should all be astutely cognizant of the increasing costs of providing weights and measures protection. Toward the goal of providing maximum effectiveness in weights and measures enforcement I direct the balance of my presentation.

Since we are all familiar with the traditional and accepted methods of weights and measures enforcement, let us explore the possibilities of breaking away from traditional enforcement policies in the interest of increasing our effectiveness without commensurate cost increases.

I am sure that many of you have heard or seen the television show, *One Step Beyond*. Well, I am going to live dangerously this afternoon. I would like to present for your thought and consideration a program consisting of seven steps beyond, which if implemented would increase the general effectivenes of a weights and measures enforcement program, and upgrades weights and measures enforcement in general.

1. The first step suggests that the practice of placing a paper or plastic-impregnated seal, on a device be discontinued. There are a number of good arguments supporting the use of the visible seal. It has been said the seal gives evidence of approval by the weights and measures official, in that the requirements of the law have been met, and that for the consumer, the seal inspires confidence in the devices used to determine the quantity of his purchase.

The presence of a seal, however, may lead to the incorrect conclusion that a device upon which a seal is found is guaranteed by the jurisdiction to be found fully accurate at all times. And we all know that this is not always the case.

2. My second step suggests that we take a hard look at the various devices we are presently inspecting, and the use to which these devices are being put.

Consider for a moment the kind of devices we are inspecting and their significance to our primary function, "That equity prevails in all commercial transactions involving determination of quantity."

Is an actual sale taking place at the time the device is used? Is the device used only to estimate an approximate quantity or to measure several quantities which constitute a mixture sold as a mixture? Perhaps the device is used to determine weight or measure as part of a packaging or filling operation for container or packaged type sales of commodities.

Our concern should be with accurate quantity at the time of the sale. At what point is the actual charge based on the quantity determination

made? In the case of a postal scale used by an office or business concern, final determination as to correct postage remains the prerogative of the Post Office. In the case of a produce customer weighing his or her selections on a hanging scale in the produce section of the market, the customer is only estimating the weights of his or her selections. Final determination and charge will be made on the checkstand scale. With respect to packaged meat, cheese, corn flakes, detergent, etc., accuracy of these weights or quantity statements will be determined by a statistical sampling technique such as Handbook 67 or other comparable checking procedures.

What I am saying is, that if it is necessary, we can increase our effectiveness by eliminating the inspection of devices on which final determinations of quantity are not predicated. This includes prepackaging scales, postal scales, and customer convenience scales in the produce section of markets.

3. My third step suggests that State, county, city, and local regulations requiring periodic inspections of devices be eliminated. This requirement can be replaced with the provision that each weights and measures official inspect each device as often as he deems necessary. This would place responsibility of inspection frequency on the person who is best informed to the needs in his jurisdiction.

Unnecessary mandatory periodic inspections on some devices could be eliminated and increased inspections on others could be effected. Frequency of examination should be based on local experience and will certainly vary from device to device.

4. My fourth step constitutes the application of a statistical sampling technique for the inspection of all devices. In most situations this procedure would permit a shift of inspection personnel to the ever-increasing field of packaged commodities.

Statistical sampling techniques have been used by industry for years for product quality and quantity control and, since 1962, in the Wisconsin Weights and Measures selective testing program.

5. My fifth step, in conjunction with the previous one, would require a change in our present administrative practice with respect to strict liability of those who engage in business involving commercial weighing and measuring. Although our present laws clearly hold the merchant liable for the accuracy of the measurement processes and measurement representations, little punitive action, if any, is taken against those guilty of using inaccurate equipment or selling short weight or short measure commodities.

We are all aware of the owner or user who does little or nothing in the way of maintenance or accuracy determination of his device until the device is tagged out of order by his local weights and measures official.

I am suggesting that we administratively get the monkey off our backs, and put it on the back of its rightful and legal owner, the owner and user of the device.

6. My sixth step is coordinated with steps four and five. I am suggesting a Statewide voluntary registration of weights and measures devices service and repairmen. Provisions for revocation of registration should be provided when poor workmanship, etc., were in evidence.

Registered service and repairmen in good standing would be permitted to repair and remove out-of-order tags. Tags would be mailed by the repairman to the weights and measures official along with the date of repair, repairman's name, and registration number. The weights and measures official could then reinspect the device at his convenience or whenever he deemed necessary.

Unregistered repairmen, or those not in good standing, would not be permitted to remove out-of-order tags, and inspection of their work would be necessary before the device could be used commercially.

This suggestion would result in both the upgrading of the servicemen, as well as allowing the weights and measures official more discretion in the administration of his office.

7. My seventh and last step is concerned with increasing the police powers of the weights and measures official and his inspectors.

To make any enforcement program successful, some simple and expeditious method of admonishing recurrent or flagrant violators is necessary. I am suggesting that the police powers be enlarged to permit weights and measures officials, under certain controlled conditions, to issue citations for false weight, false measure, or the use or possession of a false or inaccurate device. Such citation, like that of a traffic ticket, would require payment of a fine and/or appearance before a Municipal Court Judge.

Other, more serious violations requiring prosecution would be handled in the same manner we now handle prosecutions.

Many local city or county jurisdictions may already have such powers in their basic authority. In most cases, action by their local council or Boards of Supervisors is all that is required to authorize their issuing citations.

I believe that the time has come for some of us and fast approaching for others, as responsible administrators of weights and measures programs, to accept the realities of restricted fiscal resources and the consequent demand for greater precision in program planning and management.

It is incumbent upon all of us to perform our primary function in a manner which is both efficient and economical. To accomplish this objective, we must achieve the maximum effectiveness from our individual jurisdictional fiscal resources.

ACTIVITIES OF THE OFFICE OF WEIGHTS AND MEASURES, NATIONAL BUREAU OF STANDARDS

H. F. Wollin

Assistant Chief, Office of Weights and Measures

As in years past, the staff of the Office of Weights and Measures appreciates having the opportunity to report on its activities to this Conference. Normally, Mr. Jensen would open discussion and introduce other staff members, who would present a portion of the OWM report. However, he received a call this morning to attend a meeting with members of the Congress this afternoon. Hopefully, he will return in time to participate in a portion of this afternoon's program.

Following my review of some developments during the past year, you will hear from other members of the staff who will report on activities in their area of responsibility.

The OWM laboratory has been kept busy with a fairly heavy workload of calibrations of mass, length, and volume standards that have been submitted by the States and other governmental and industrial organizations. Laboratory personnel have also devoted considerable time to work associated with the new State standards project. During recent months the laboratory has been used as a training center for persons who have been invited to participate in our training program for State laboratory technologists. Such training will continue to expand and will be offered at both the National Bureau of Standards and in the various State laboratories.

Another important phase of our overall training effort involves the training schools and courses that we conduct for State and local weights and measures officials. Over 25 schools were held in the States during the past 12 months. From all indications, such training has been highly successful and of considerable value to those who have participated. Last May we also held a weeklong training training course at NBS for State and local weights and measures officials who have supervisory responsibilities. We are pleased that 44 persons, representing 33 jurisdictions, were able to attend this course. Our plan is to hold similar courses next year, and at least one will probably be held in a western city.

We are convinced that training in all forms is a vital necessity to those who work in the field of weights and measures—what with new developments and constant changes in technology, laws and regula-

tions, and procedures—and we intend to step up our training effort to meet the needs of the future.

A significant change in our program of testing railway track scales has been finalized which should provide new and increased service to the railroads. The new plan will involve working out schedules and more overall cooperation with the American Association of Railroads on matters concerning this important activity. The ultimate aim is to have both NBS railway test cars operating throughout the United States on a continuous schedule. Annual tests will be made of the 17 master track scales that are located throughout the country and operated by the railroads. There is no charge for the tests of these master track scales. In addition, the railroads and industrial firms may, for a fee, arrange with the American Association of Railroads to have the National Bureau of Standards conduct tests of other railway track scales when the NBS test car is in their area. We will try to keep weights and measures officials advised as to the movement of the test car in their jurisdictions and of the testing schedule we plan to follow.

Last year we reported on the initiation of a new project that we call "the examination of prototype weighing and measuring devices." This project has developed steadily, and the response from manufacturers has been good. Some of the equipment that was submitted for examination by manufacturers under a voluntary arrangement was found to conform to Handbook 44 requirements, and reports of such examinations were transmitted to the States for their information and guidance. However, it is noteworthy to point out that more than a few devices submitted for examination failed to pass our examination and were returned to the manufacturers. Some of these were corrected or modified and have since been found acceptable. On the basis of the results of such effort to date, we feel that this is a most worthy undertaking and profitable not only to manufacturers, but to weights and measures jurisdictions as well.

As usual, the two giants of our organization and operations—communications and information dissemination—played a large role in the daily lives of the OWM staff. There is not time to go into details concerning these activities, except to say that we are mindful of our obligation to assist promptly and effectively those who call on us for advice, assistance, or some other form of service. We would appreciate hearing from anyone who might wish to suggest how we can serve you better.

We should apologize for the lateness in getting out the Conference report of last year. However, as frequently happens, some government publications get unduly delayed due to the voluminous workload placed upon the printers, and there is very little that can be done to

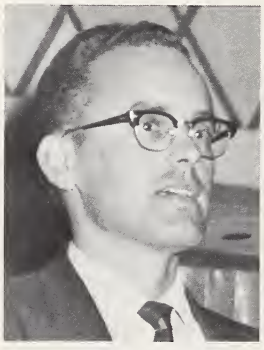
expedite such matters. We have hopes that this year's report will reach you sooner.

While on this general subject of publications and information dissemination, I should mention that we have recently hired a young man who is a very capable illustrator to help us dress up our information output. His talents should enable us to communicate and present information more interestingly and effectively through the use of graphic arts, visual aids, pictures, and the like. We feel there is considerable need for more of this in the field of weights and measures, and the problem facing us now is where to start. We obviously will expand our use of graphic arts and other forms of illustration in our training program and publications. I cannot promise that Handbook 44 will some day be full of illustrations and pictures, as some may like it, but we no doubt will explore the possibility.

To conclude this general summary, the OWM staff has devoted many long and arduous hours during the year to matters associated with the implementation of the Fair Packaging and Labeling Act. Coupled with such activities has been the many miles traveled by the staff to attend and participate in conferences and meetings held throughout the country. Our travels have extended from Hawaii to Saudi Arabia, the latter involving a trip by Mr. Jensen and myself that was made at the request and expense of the Kingdom of Saudi Arabia to assist their government in developing a modern weights and measures program. In looking back, it has been truly a very busy, exciting, and challenging year for OWM, and there is promise of more of the same in the months ahead.

TOM STABLER

Laboratory Metrologist, Office of Weights and Measures



It is a pleasure to speak before this group and discuss what is unquestionably one of the most significant programs in the history of weights and measures in this country. I am referring to the New State Standards Program.

Since I met with you last year and discussed the new standards, my coworkers (Harry Johnson, Blayne Keysar) and I have visited 24 States for the purpose of installing new standards, training of laboratory technologists, and planning of new laboratory facilities. Also, we have visited State laboratories for the purpose of making final inspections prior to the approval of facilities to house the new State standards. Ten States have qualified as recipients of the third set of standards. They include: Alabama, Idaho, Indiana, Maryland, New Jersey, North

This is Idaho's new State weights and measures laboratory.

Dakota, Oklahoma, Texas, Vermont, and Wyoming. New State standards and instruments will arrive at these laboratories beginning in the fall.

At the time all States are equipped with new standards, the primary function of the OWM laboratory will be to serve as a training center. This year five State laboratory technologists have received training at NBS.

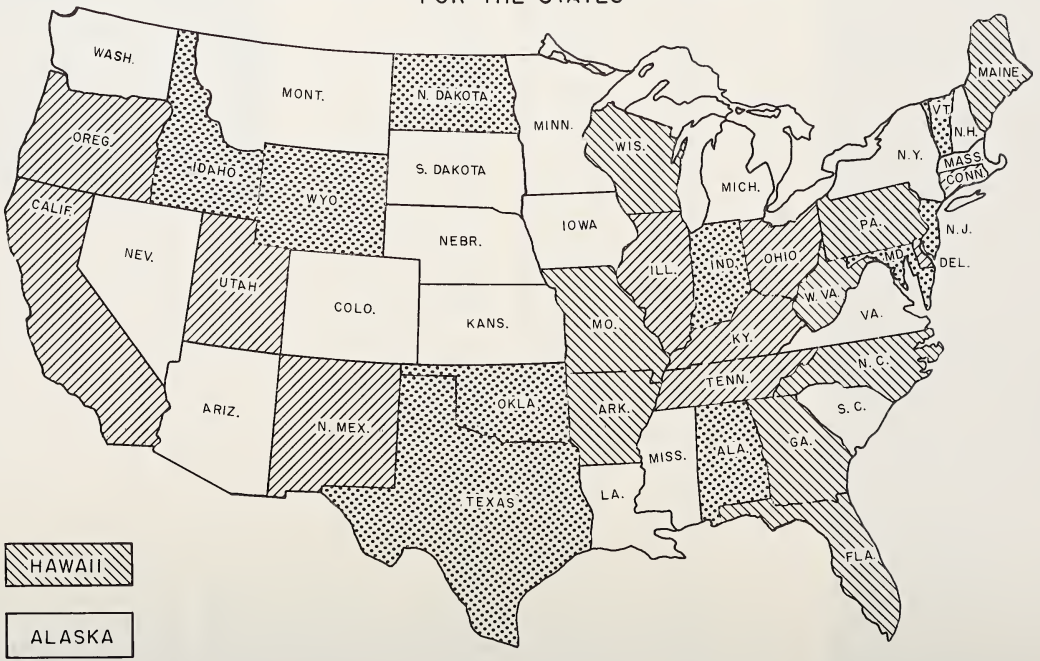
At NBS and at State laboratories, a total of 16 technologists have completed the basic training course in laboratory procedures, calibrations, and tests. Twelve courses—of two weeks duration each—have been conducted at the State laboratories. The First Regional Seminar, for advanced technologists, was held May 27 to 31, 1968, at the Wisconsin laboratory in Madison.

At this time, 35 States have completed laboratory facilities, have laboratories under construction, or are in the planning process for new laboratories. Fifteen States have no plans whatsoever.

It should be pointed out that the appropriations for the fourth and fifth year's new State standards are not "automatic." It is necessary to request funds each year and justify the annual appropriation of $400,000 to purchase new standards and instruments. If the remaining States make no effort to qualify in this program—to meet the requirements for an adequate laboratory facility and technical personnel—it is doubtful that the funds will be forthcoming.

This is an important program for State weights and measures; we offer you our assistance in making the initial drive for State support. We will meet with weights and measures officials, budget officials, governors, or anyone else in your jurisdictions to discuss your participation in the New State Standards Program.

NEW WEIGHTS AND MEASURES STANDARDS FOR THE STATES



R. N. Smith

Technical Coordinator, Office of Weights and Measures

It is a sincere personal pleasure for me to have this opportunity to come before the Conference once again and leave some thoughts with you concerning the philosophy of our Technical Training Program.

It was refreshing to me to hear the remarks Maynard Becker made concerning the management of today's modern weights and measures program. I certainly agree wholeheartedly with Maynard's remarks, and found his philosophy to be very similar to the philosophy we have been teaching in our training effort throughout the country.

I think we would all agree that today a vital part of any weights and measures program must be a strong training program. It certainly is a vital part of our program at the Office of Weights and Measures. As devices and merchandising become more sophisticated, training becomes more essential.

We no longer have today what I would refer to as strictly a "nuts and bolts" operation in weights and measures. Today we are dealing with results of systems and with end products, much more so than devices themselves. Obviously, this creates some problems and increases the need for training.

The emphasis in our program has changed and will continue to change. We have to realine our program from year to year, sometimes month to month, in order to change the emphasis from one area to another as needed. Activities must be based on needs and results, more so than on the calendar or on some legal requirement. We think this is the way the program should work.

Certainly, a neglected area has been the area of public education. Many weights and measures laws are not complied with, simply because the public is unaware of the requirements contained in the law. It is hard to comply with something that we do not understand, or are not aware of. I think there is a great need to make this education a very vital part of any program today. I am referring to public education, education to the users of devices, and to the people that are buying products weighed on the devices, or measured through a device.

Another area of neglect is the lack of cooperation with industry service personnel. We are certainly both trying to arrive at the same end results, and we should have this cooperation. In fact, I think it is absolutely essential for a good program.

In the Office of Weights and Measures training program, we are trying to gradually change in an effort to meet new challenges. I would

like to review with you a few of the things that we either have done or are in the process of doing in our program. We are continuing to hold State training schools on request. All that is necessary is a request channeled through your State office. We try to fit the school to the particular need of the requesting jurisdiction.

We conducted 25 such schools last year. It is possible for large county and city jurisdictions to also take part in this training and we urge the counties and cities to participate.

We will continue to have basic, or general, types of schools. This school is used in jurisdictions that we are going in for the first time, or that have a complete new staff. This basic type of school takes in the general field of weights and measures. We talk about laws, regulations, Handbook 44, package control techniques, and things of this kind.

In repeat schools, we try to give a little more refinement, and more specific emphasis on programs, again based on the need of the jurisdiction.

In all schools, we try to keep the students abreast of any new techniques, or new areas of operation that may have developed during the past year or since we have been in the jurisdiction. Certainly, this past year we have been very concerned with the labeling requirements in all our schools. As you are all well aware, there has been a lot of confusion in this area, and we are just getting started. There is going to be a great need for training in the packaging and labeling area in the future.

Another thing that we have tried to do during the past year is to arrange regional schools. This past year a school was held in New England, and included the States of Vermont, New Hampshire, and Maine. We are planning to do the same thing in the West, this coming year.

We have committed ourselves recently to holding an annual supervisor's school. Last month, the most recent supervisor's school was held at our facilities at Gaithersburg. This school was different from the previous three schools from several standpoints. Normally, in these schools, we have held attendance to between 13 and 15 State Supervisors. This time we threw the supervisor's school open to any State, county, or city official, that had supervisory responsibilities. And, as Harold pointed out in his report, we ended up with 44 people.

We were happy with the school and we think it was a good one. We dealt more with the philosophy involved in weights and measures control. Members of our own staff handled the topics in their various areas of endeavor; very successfully, I think. We had four guest speakers, from the National Bureau of Standards, discussing the four subjects of personnel management, budget, supervisory responsibilities, and public relations.

We are going to continue the annual supervisor's school arrangement,

and I think it is fairly safe for you to plan on being notified of such schools in the future.

Our training program involves other areas. Tom Stabler and his group handle the training in the laboratory and calibration procedures. Training in the package labeling area is handled by the packaging section headed by Eric Vadelund. As Steve Hasko will report to you, the Engineering section is involved many times in field training on special test equipment in areas like liquefied petroleum gas meters, odometers, and slow-flow meters. Our training program is a broad program and we intend to continue to expand it.

The advanced planning and scheduling of our training schools has been rather haphazard in the past. It has been necessary in a few cases to turn down a request for a school, simply because we already had one school scheduled for that particular week. We will attempt to plan our schools at least a year in advance, and in this way avoid this problem in the future.

As Harold reported to you, we are making greater use of visual materials, now that we have our graphic arts illustrator on board. You may have seen evidence of his handy work during the Conference. Certain paragraphs in the Handbook that are hard to interpret could be handled better with the use of visuals.

We are going to continue to ask for more participation by the key officials in the various jurisdictions. We think for any school to be truly successful, the people in the jurisdiction should be participating to a great extent in the conduct of the school.

In closing, I would like to leave you with one thought—please keep us informed of what your needs are in the training areas. This will help us to provide you with meaningful assistance. We must know your needs before we can serve these needs.

Remember, a written request, channeled through the State office, is normally all that it takes to get a training school set-up.

STEPHEN HASKO

Engineer, Office of Weights and Measures

The mission of our group at the Office of Weights and Measures is to provide engineering and technical backup for the Office of Weights and Measures program. Our sphere of activity may be generally divided into two broad categories: (1) measurement studies and special problems, and (2) technical assistance. We are very competently assisted in this work by Charles Schreyer, Jim Little, and Bill Creek and, during the summer, Jon De Buchananne.

I will first review our activities in the area

of measurement studies and special problems, then dwell briefly on technical assistance, and finally wind up with a new area of activity which will tie in to all our work.

We are currently winding up evaluation of wire and cordage measuring devices as well as problems connected with the measurement of wire and cordage. We have conducted studies with 11 devices and the traditional "yardstick" method on 32 materials and a steel tape with three different operators.

We have programmed all data for computer analysis both statistically and mathematically, our objective being to evaluate the present tolerance structure and propose modifications, if needed.

We have conducted studies on the effect of temperature, speed, tire pressure (vehicle and fifth wheel), road surfaces, and length of calibration course to determine the effect of these on fifth wheel calibration and an odometer and taximeter testing. They were designed to answer questions such as follows:

1. Can a calibration at 80 °F be used at 20 °F?
2. What is the best calibration speed? If the wheel is calibrated at, say, 35 mph, will its errors at 15, 25, and 45 mph be negligible?
3. What about road surfaces. If the wheel is calibrated on macadam, how will it perform on concrete or blacktop?
4. What effect will road surfaces have on odometer and taximeter testing?
5. How many test runs are necessary during calibration to obtain a reliable calibration value?

The main concern appeared to be temperature sensitivity of the wheel. We have noted a change of as much as one-thousandth of a mile per mile per 20 °F change from the calibration temperature. This sounds like peanuts—only 0.1 percent; however, a wheel calibrated at 80 °F may be off by $^{3}/_{1000}$ of a mile at 20 °F. Thus, calibration at more frequent temperature intervals (30 °F intervals) are recommended, and the appropriate calibration employed during the test.

With respect to calibration and test procedures, the various report forms have been revised and auxiliary procedures prepared. The remainder is in the process of preparation.

A master pressure gage will soon be available for master gage calibration.

A program has been initiated with respect to the development of a road simulator for testing rental vehicle odometers and taximeters. We are approaching this problem from two directions. The first method is a modification of the wheel test utilizing precision revolution counters. This would have the flexibility of being used as a stationary garage-type test or could be used away from a fixed location

as a road test. The second method is concerned with the evaluation of a late-model twin roll simulator, along with the development of any special procedures or modifications if necessary to achieve the precision required.

Work on the use of a bell prover for testing LPG vapor meters has been concluded and the data, after a preliminary evaluation to ascertain their validity, are being programmed for computer analysis. Occasionally we have run into little complications that tend to confuse the issue. One such complication was cleared up recently when we finally concluded that one of the vapor meters that was labeled at the factory as being temperature-compensated was not, whereas one that was not labeled at the factory as being temperature-compensated actually was. Work in progress, which should be concluded in the near future, is concerned with the use of a reference meter with low flame tests and for testing LPG vapor meters. The basic foundation of a proposed LPG vapor meter code has been developed.

It appears that there will be more activity in the near future with respect to the metering of milk. Two meter companies are planning on coming out with new milk metering systems shortly. Another is conducting tests at Springfield, Massachusetts.

It seems unfortunate that at the temperatures where there is no ban against the use of a vapor return line in LPG liquid metering, the consumer losses through this line are the greatest. Theoretical calculations indicate that losses to the customer through the vapor return line increase as the temperature increases and in the temperature range of 90 to 110 °F will range as high as 4.6 to 6.0 percent, respectively. A brief study will be made to confirm these calculations.

We are working with the National Paint, Varnish, and Lacquer Association toward the development of a simple, nondestructive test for determining the contents of gallon paint cans.

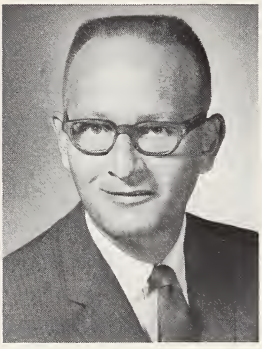
We also participate in providing technical assistance and training for the States in specialized areas of weights and measures, such as LPG liquid meter proving and odometer and taximeter testing. We have always found these to be as beneficial and educational for us as we hope they are for you.

We are fortunate in having acquired the services of Jim Little and Bill Creek, who have fit into our program very nicely. Jim, among his other duties, has taken on the job of programming the data from our various studies for computer calculation and statistical analysis. (He will be assisted in this by Bill Creek.) This provides us with a fast, direct route to the use of the computer rather than a slower, indirect route which encouraged us to use the slower methods of calculation and data evaluation.

Some of the other benefits are as follows: (a) We will achieve better experimental design, since we will be able to plug through trial runs to check progress toward our goals. (b) Being more familiar with the computer operation, we will be in a better position to know exactly what we need and how to go about getting it. (c) We will have our data punched out on cards, and thus extracting any additional information as needs develop will be a simple operation.

ERIC A. VADELUND

Weights and Measures Coordinator, Office of Weights and Measures



My chore here this afternoon is to tell you a little bit about the progress we have made since the Fair Packaging and Labeling Act became effective, slightly less than a year ago.

As you may know, the FPLA assigns essentially two duties to the Department of Commerce which, in turn have been delegated to the National Bureau of Standards and the Office of Weights and Measures.

Probably the one with which you are most intimately concerned is Section 9. This section presents the mandate for uniformity. We have been fulfilling our responsibility under Section 9 by transmitting regulations, proposals, comments, and the like, to all of the States. We have also been reviewing legislation at the request of States to see what is necessary to bring their legislation and their regulations into conformity with the FPLA.

Last, but not least, we have been deeply involved in the deliberations concerning changes to the Model Law and Model Regulation. This activity you are pretty well aware of.

The other major section which assigns duties to the Department of Commerce, is Section 5, the so-called "undue proliferation" section.

This part of the statute mandates that the Secretary of Commerce identify undue proliferation, document this, and attempt to reduce it. In fulfilling our obligations, we have taken a critical look at approximately 135 different types of packaged consumer commodities. These commodities cover the whole range of consumer goods, including both food and nonfood items, household supplies, toiletries, automotive supplies, hardware items, and proprietary medicines. Generally, you name it, we have looked at it. If you can name it and we have not looked at it, we would like to hear from you.

I would like, here and now, to acknowledge publicly the tremendous response we have received from the States in gathering data for

this program. Without the help of the States, this program's effectiveness would be nowhere near its present successful level.

Of these 135 commodities, we have found about 20 that do not present a problem. They are packaged in reasonably comparable quantities and therefore do not inhibit the ability of a consumer to make a value comparison. Or they are such that the end product is a standard, rather than the quantity contained in the package. On this latter point, we are thinking of things like cake mixes, in which the end product is standardized, in that the formulation will deliver a cake that fits a standard cake pan.

Additionally, we have obtained commitments from 31 major industries to reduce the number of quantities in which their particular packaged commodities are offered for sale at retail. And these commitments include some from those industries identified as being particular problems in the course of the legislative testimony on the bill. Of the 31, about half have not only made a commitment to reduce the number of quantities, but they have also developed specific quantity sizes in which they will pack. The remainder, of course, are working to that end.

For example, we have commitments from manufacturers of adhesive bandages. We have a commitment from the cereal industry, which has agreed voluntarily to eliminate all fractional ounce packaging in packaged breakfast cereals, with the exception of single-serving packages. This will result in a reduction of quantities from approximately 33 to approximately 16.

The cheese industry is working on a proposal to reduce quantities in which nine or ten of the most popular packaged cheeses are offered for sale.

The cookie and cracker people have agreed that they will work to reduce the quantities in which their products are offered for sale.

Dry detergents of normal density in the one- to eight-pound range—the industry has agreed to package in six sizes. The macaroni people are currently at work on developing a proposal for that industry. The paper towel industry has not only made a commitment, but has specified the quantities in which they will package roll-type paper towels. This has resulted in a reduction from probably somewhere in the neighborhood of 30 to approximately 8. These, by the way, will be packaged and sold on a square-footage basis, one readily comparable with the other.

The mouthwash people are currently at work. The peanut-butter people, to put on those crackers I mentioned a little while ago—we have just received their proposal this week. The pickle people, syrup people, toothpaste people, and, until yesterday, we thought the peat moss people, are also at work.

Additionally, industry committees have been established and are currently at work developing proposals to reduce proliferation in approximately 70 other different types of packaged consumer commodities.

To put a dollar figure on all of that activity, we came up with some estimates. For example, the annual consumer expenditures for all products that will receive consideration under our program is about 30 billion dollars. Consumer expenditures for those products currently under consideration or for which commitments have been made are approximately $19 billion. As Dr. Astin pointed out this morning, this is somewhat in excess of 50 percent the first year.

We think this a pretty good track record for less than one year of this program. And with the continued support and cooperation of the weights and measures officials and of industry, we hope to improve upon that record.

R. A. Vignone

Attorney Adviser, Office of Weights and Measures

It is indeed a pleasure to have the opportunity to address you at this 53d National Conference on Weights and Measures.

Many multi-pack cartons of soda, as they are presently labeled, for all intents and purposes meet the Federal labeling requirements as established by the Fair Packaging and Labeling Act as they regard net content disclosure. The question that we must determine is whether, as labeled, they agree with the Model State Packaging and Labeling Regulation as recommended to this National Conference by its Committee on Laws and Regulations. By its terms, the Model Regulation would require the manufacturer to imprint on the six-pack container the total number of fluid ounces contained in all six bottles. In other words, compliance with the Model Regulation would require the manufacturer to imprint on each six-pack container the following legend "6 10-oz. bottles; 60 fluid oz. total." Many manufacturers are presently using this method for labeling their containers in this rapidly growing area of merchandising.

While it may appear at first that the question of noncompliance with the Model Regulation may easily be resolved against the manufacturer, an interesting legal argument has been raised to which we must address ourselves. Let us assume, for example, that a manufacturer claims that he is not required to adhere to regulations promulgated by the States which differ from the information requirements imposed by Federal

regulations issued under the Fair Packaging and Labeling Act. As authority for this proposition he cites section 12 of the Fair Packaging and Labeling Act which reads as follows:

Effect Upon State Law

Section 12. It is hereby declared that it is the express intent of Congress to supersede any and all laws of the States or political subdivisions thereof insofar as they may now or hereafter provide for the labeling of the net quantity of contents of the package of any consumer commodity covered by this Act which are less stringent than or require information different from the requirements of Section 4 of this Act or regulations promulgated pursuant thereto.

In short, this section states that the Congress intended to render null and void those State and local requirements, relating to net quantity of content statements, which:

1. are *less stringent than* the Federal regulations
2. require information *different from* the Federal regulations.

In light of the Congressional intent as expressed in section 12 of the Act, one is led to wonder whether, by extending the preemption from State laws that are "less stringent" than Federal regulations to State statutes having information requirements that are "different from" Federal regulations, it was intended that all State laws regarding net quantity of content statements would be excluded from further consideration by virtue of the Federal preemption if such laws, in fact, in any way imposed different information requirements from the Federal regulations. If such a result was the intent of Congress, why then would the Congress create a special preemption for the "less stringent" State requirements? The situation is roughly similar to a case wherein the Congress might say that a certain rule should apply in any State of the United States and also in Texas. Why mention Texas specifically when it is already included as one of the States in the United States? Legal enactments are not generally prone to such superfluous statements. Our inquiry, therefore, must center on whether the inclusion of "less stringent" State requirements is indeed superfluous, or whether the words "different from" are intended to have a meaning somewhat at variance from their usual conversational implication.

Where an ambiguity appears to exist in the words of a statute, recourse must be had to legislative history in order to determine the precise meaning which Congress intended. We are fortunate that in this case the true intent of the Congress may be arrived at from the Report of the House Committee on Interstate and Foreign Commerce and from the Report of the House and Senate conferees which immediately preceded final passage of the Fair Packaging and Labeling Act.

For those of you who may not be familiar with the history of the Truth-in-Packaging or Fair Packaging and Labeling legislation, it should be mentioned that the Senate, rather than the House of Representatives, played the leading role in the development of this law. Successive bills were introduced in the Senate and many hearings were held during the period 1961 through 1965. These efforts culminated in the passage of S. 985 by the Senate on June 9, 1966. This bill which was subsequently referred to the House for consideration *would have preempted all State laws and regulations dealing with net content statements, regardless of whether such State regulations might be different from, less stringent than, or more stringent than the Federal regulations.* Following Senate passage of the bill, hearings were held before the House Committee on Interstate and Foreign Commerce. This Committee reported to the House a bill which differed in several respects from the one passed by the Senate. One of these differences involved the section relating to the preemption of State law. In its report commenting on this section the House Committee stated as follows:

> *"Effect upon State laws and cooperation with State authorities.* The bill provides that its provisions and the regulations promulgated in accordance with it shall preempt labeling requirements with regard to net quantities of State laws or State regulations to the extent that such State laws or State regulations with respect to the labeling of net quantity of contents of packages impose inconsistent or less stringent requirements than are imposed under section 4 of this legislation."

After passage by the House of its own packaging and labeling measure, a conference was arranged to settle the differences between the House and Senate versions. The conference committee settled upon the House version of the preemption section and specifically referred to the House Report as the authority for the interpretation of this language. The House language therefore ultimately became what is now section 12 of the Fair Packaging and Labeling Act. A review of the legislative history therefore would seem to indicate that the words "different from" as these words appear in section 12 of the Act are intended to have the same meaning as the words "inconsistent with." This interpretation, it should be noted, resolves the ambiguity surrounding the inclusion of the language "less stringent than." It is possible, of course, that a State regulation might be both "less stringent than" and "inconsistent with" a Federal regulation. However, a State regulation could be "less stringent than" a Federal regulation without necessarily being "inconsistent with" the such Federal regulation. It was necessary, therefore, for the Congress to spell out two categories of preempted State regulations if it meant to encompass all such regulations falling into either category.

Using the legislative history of the Act to arrive at the meaning of the words "different from," we may now turn to section 12 of the

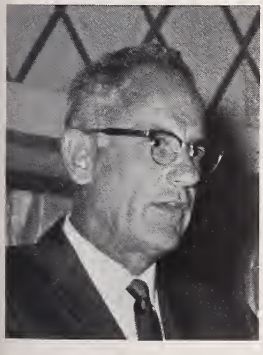
Act and read such phrase as though it said "inconsistent with." Having navigated this legislative path, we return to the problem of the six-pack container and the defense raised by the manufacturer; namely, that he is not obliged to conform with the Model Regulation because it is "different from" the Federal regulation insofar as it purports to require a total net content statement for the entire six-bottle container. This defense must now be revised by striking the words "different from" and substituting in place thereof the words "inconsistent with." If thus rephrased, the defense would read as follows: "I am not obliged to conform with the Model State Regulation because it is inconsistent with the Federal regulation insofar as it purports to require a total net content statement for the entire six-bottle container."

The weakness of this defense now becomes apparent. There is no inconsistency insofar as the requirements imposed under the State and Federal regulations are concerned. The State regulation is more stringent than the Federal regulation; yet, and this is the crucial point, the information requirement imposed under the State regulation is not violative of the Federal requirement. By adhering to the State requirement, the manufacturer has satisfied his legal obligation under the Fair Packaging and Labeling Act.

We recognize that the outcome of any court case involving a refusal of a manufacturer to adhere to a State law regarding net quantity of content statements, whose defense in support of such refusal is based on the grounds discussed earlier, must await a formal judicial ruling. However, it is felt that the opinion expressed herein as to the likely result of such a case, if litigated, is in keeping with the full spirit of the FPLA in that it encourages the labeler to present full information needed in order for a consumer to make a value comparison.

M. W. Jensen

Chief, Office of Weights and Measures; Manager, Engineering Standards



As many of you know, the weights and measures activity and the National Bureau of Standards Office of Engineering Standards Services were wed a couple of years ago. In many respects, though, they are both my responsibilities; they are engaged entirely in separate types of programs. In some areas, particularly those areas of responsibility resulting from FPLA, they act coordinately.

In the engineering standards field, we have the responsibility of developing and publish-

ing voluntary product standards; we operate what we consider to be a very fine engineering standards library. This program, I think, is making excellent progress. It is headed by Don McKay, who many of you know used to be on our weights and measures staff and is a fine young man.

We have strengthened the Office of Weights and Measures staff during the past year because of the beginning of the implementation of the Fair Packaging and Labeling Act, and because of what appeared to us to be a need for additional capability.

As some of you know, Harold Wollin and I had a very special and very interesting and exciting assignment last fall that has led us to new friendships, new experiences and, we hope, new intelligence. Our assignment was to develop a measurement system, and a measurement control system, for the Kingdom of Saudi Arabia.

This brought about a need for considerable study here and a trip to Saudi Arabia for two weeks. In Saudi Arabia, a nation that to me is unique in the world, we learned about the people, the business, and the developing industry, and prepared a report that has been submitted to the Kingdom through the Deputy Minister of Commerce and Industry.

All of this was brought about through the basic knowledge of an individual who honors us today by his presence, a young man by the name of Kamal Saad. He is the director of an industrial development program for the Kingdom, under a continuing project organized by the Arthur D. Little Company of Cambridge, Massachusetts.

Mr. Saad has consistently maintained that, if you wish to develop a country's industry, you had better know something about measurement. As a result of this, he visited the Bureau and a working agreement was entered into—an agreement, incidentally, which was totally funded by the Kingdom. We have submitted our report and Mr. Saad, Mr. Wollin, and I are optimistic about the possibility that our service to Saudi Arabia will result in the development in the Kingdom of a measurement program that will provide a solid foundation for Arabian industrial growth.

It is my pleasure to introduce to you the new members who joined our staff since the Conference last met.

The Fair Packaging and Labeling group was fortunate to receive three fine young men. They are Dave Edgerly, Karl Newell, and Steve Hatos. Carolyn Kingsolver has been working part-time with the FPLA awaiting a full time position in her special field.

We bolstered our capability in engineering technology by acquiring the services of Bill Creek, Jim Little, and Jim Chittams.

We are extremely happy to have our newly acquired illustrator on board, Phil Carr.

ADDRESS

by Kamal N. Saad, *Deputy Project Director for Saudi Arabian Affairs, Arthur D. Little, Inc.*

I am delighted to be here today and honored to be asked to say a few words to you about our program in Saudi Arabia. Our firm, Arthur D. Little, Inc., has been retained by the Ministry of Commerce and Industry as Economic and Industrial Development Advisors, and we are formulating and assisting with implementation of a broad-ranging industrial development program.

In addition to undertaking surveys of industry sectors to identify opportunities for new industries and to carry out in-depth feasibility studies of specific industrial projects, we are concentrating on building a sound basis for industrial development. This work covers:

1. The formulation of national policy to guide idustrial development, including such concerns as private versus public industrialization, foreign investment policy, industrial licensing and incentives, tariffs, and, on the institutional side, the design and implementation of an Industrial Development Corporation and Industrial Development Bank.

2. On the commercial side, our work covers study of trade problems and practices with a view to improving Government commercial policies and relationships with the business community.

3. In the area of standards, we have formulated a standards policy and program for the Kingdom covering industrial and engineering standards and the establishment of a Saudi Arabian Standards Association. The British Standards Institution has kindly accepted to assist the Government with the implementation of this program.

4. In the related and most important and basic area of weights and measures, we were most pleased to have been instrumental in bringing the Saudi Government together with the National Bureau of Standards. The Bureau has formulated comprehensive and far-ranging recommendations covering:

   a. Objectives
   b. Organization
   c. Staffing and training, and
   d. Physical back-up facilities.

5. All of these activities have implication of an organizational and staffing nature and we are thus also assisting with Ministry reorganization.

Sound policies provide the favorable climate and national institutions the practical framework needed for the development of human resources, without which no country can achieve sustained growth. Saudi Arabia enjoys substantial revenues from its petroleum resources and its government is devoting the larger part of these revenues to development. Its most critical need is to develop its manpower capability. This is why our progam of assistance is strongly oriented towards assistance with implementation, and this is why we were delighted to see that the National Bureau of Standards not only emphasized the importance of personnel development in establishing an effective weights and measures system, but also expressed its readiness to assist the government of Saudi Arabia in realizing this objective.

This pattern of cooperation, between established institutions in the advanced countries such as the National Bureau of Standards and the new institutions of the developing world, is in our opinion one of the most effective ways for the transfer of technology. This is in fact why, when the Saudi Government faced the need to reevaluate and redesign its approach to weights and measures, it turned to the Bureau for help.

We are indeed proud to have had even a small hand in it.

WEIGHTS AND MEASURES IN CEYLON

by H. Goonetilleke, *Deputy Warden of the Standards, Weights and Measures Division, Department of Commerce, Ceylon*

Mr. Chairman, ladies, and gentlemen, it is a great honor for me to have been invited to address the 53d National Conference on Weights and Measures. In fact, my presence here at this Conference is quite fortuitous. My visit to the United States is not concerned quite directly with weights and measures, although I am deeply concerned with it back home. My main purpose here is to study what may be called, to differentiate it from legal metrology, "scientific metrology." It was Mr. A. G. McNish of the National Bureau of Standards, who was till a short time ago Chief of the Metrology Division, and is at present head of the Metric Study Group, who suggested that I make a study of legal metrology in the United States, in addition to what I was doing. Therefore, I wish to take this opportunity to make two acknowledgments, one to Mr. McNish for making the suggestion; and the other to Mr. Jensen of the

Office of Weights and Measures, and his staff, who unfailingly provided me with the opportunities to do so.

The system of weights and measures used in Ceylon is the English system, an inheritance of a Colonial past common to both our countries. There is, however, one major difference. The English system of weights and measures (and that means that we have a cwt of 112 pounds and the Imperial gallon) is the legal system of weights and measures. In the United States, the meter and the kilogram are the legal units of length and mass, but in commerce the Customary Units, namely, the decimal pound as the unit of weight, and the Winchester gallon as the unit of volume, are used. There is another significant difference which arises from the different political structures of the two countries. Ceylon is a single political unit. Therefore, any law is effective throughout the Island, and hence, the differences inherent in a Federal State do not exist. The Weights and Measures Ordinance, as it is titled, is basically similar to weights and measures law in the Commonwealth countries. Using American terminology, its "philosophy" is similar. Therefore, a greater emphasis is placed on the control of weighing and measuring appliances used in trade and, at present, the emphasis is solely on this aspect.

I have said earlier that the Weights and Measures Ordinance establishes the legal units of weight and measure for Ceylon. In fact, it goes further. It specifies the multiples and submultiples of the primary units in its schedules, and these are termed "authorized denominations of weight and measure." From this stems an important consideration. One cannot have a standard which does not correspond to an authorized denomination, nor can any weight or measure be used in trade, or stamped by an inspector of weights and measures, which does not correspond to an authorized denomination. As in the United States, the ordinance applies to commercial transactions of all kinds and this is covered by what appears to be a fairly comprehensive definition of "trade." Two other points of difference exist between the Model Law of the United States and the Weights and Measures Ordinance of Ceylon, the first being a requirement that all weighing and measuring appliances be stamped by an inspector of weights and measures before they are sold, and secondly a requirement that all sellers, repairers, and manufacturers of weights and measures be licensed.

The Ordinance applies to all forms of trade. However, when it was put into force thirteen years ago, supplanting much older legislation which was obeyed more in the breach, and not enforced with any purpose or uniformity, it was decided by the Government to first confine its implementation to that area of commerce which affects the

total population, that is, to the general trade. In gradual stages, the areas were extended to all trades using the avoirdupois system of weight. All trades using linear measures, and all trades using measures of capacity were covered. It was also planned that when this was achieved, measuring instruments—jewelers and apothecaries—were to be covered. At that time, the country was in the middle of an acute shortage of foreign exchange, which meant that the money for the purchase of equipment and additional staff was not available. The shortage of exchange has not abated and, therefore, we are very much in the same position today.

The administration is, to a great extent, centralized, with the authority being vested in the Department of Commerce. The director of the Department of Commerce is also the Warden of the Standards. The Weights and Measures Division has the custody of the primary standards of weight and measure for the Island and is housed in its own separate building. The division is responsible for the maintenance of the standards of weight and measure as well as the administration of the Ordinance. The primary standards, at present, are reference standards, traceable to the standards in Britain. In addition, secondary standards are maintained, and finally there are standards used by inspectors which are verified periodically by this division. The actual administration of the law is a dual system, by the Central Government and by local authorities. Twenty-four local authorities (municipal councils and urban councils) have been authorized, and the rest of the Island—this is by far the larger area—is administered by the Central Government. Inspectors are stationed at the district offices of the Central Government. There are twenty-two such district offices in various parts of the Island. While the overall planning is centralized, there is considerable flexibility in the day-to-day arrangement of an inspector's work. The inspector works directly under the head of the district office, who is, in addition to his other duties, a Superintendent of Weights and Measures for his district. Local Authorities operate independently, having their own equipment and inspectors, although the Central Government has supervisory powers.

This is a thumbnail sketch of the extent to which weights and measures laws are operative in Ceylon, and I propose now to touch briefly on the lines on which it is hoped to proceed in the future. It is here that my study of legal metrology in the U.S. has been most useful and significant. With this in mind I requested for arrangements to be made by the Office of Weights and Measures for me to see the actual operation of certain aspects of weights and measures practice. I should also thank Mr. R. L. Thompson of the Maryland Weights and Measures

Office, and his staff, for so kindly making the necessary arrangements whenever they were requested for. I was particularly interested in the testing of flow meters for the dispensing of petroleum, testing of large vehicle scales, and the checking of prepackaged commodities. I certainly envy the facilities you have here for testing large vehicle scales. What I saw, although not considered to be the latest type in use, were certainly much better than what we have, which consisted of 56-pound weights placed on the scale by hand.

But what really are the directions in which weights and measures administration in Ceylon will go in the next few years? The "presence" that leans over the shoulder of every weights and measures official in countries which use the English system of measurement these days is the Metric system, and this, to some extent, influenced the delay in implementing the application of the law to apothecaries and jewelers. In the medical circles in Ceylon, there is a very strong move to change completely over to the Metric system, and this would have taken place in the last few years except for the problems of foreign exchange.

The jewelers presently use a motley system and it seems logical to make the change there too, because in the long run it would be cheaper. And what of measuring instruments, which, in a country like Ceylon, means only flow meters for dispensing petroleum products. Should one take them in one fell swoop, as it were, into the Metric camp? These, of course, are really mattters of policy, to be decided by the government of the day, but what advice does one give?

I mentioned in the beginning that the Weights and Measures Ordinance is directed specifically to control the use of weighing and measuring appliances used in trade; little emphasis being given to the sale of goods by weight or measure. However, this will be changed. There is, at present—has been for some time—a draft bill extending the law to cover this activity and includes specifically, a requirement that goods which are sold in a container or pack carry a statement of the measure of its contents by weight, volume, or length. But that is as far as it goes. After discussion of this with the staff of the Weights and Measures Office, and sixty different sizes of toothpaste later, one wonders about effectiveness of such general requirement and one remembers an old adage, "It is easier, and certainly cheaper and less troublesome, to dam a river at its source that at its mouth."

(Following Mr. Goonetilleke's remarks, an open forum entitled "Cooperation—Communication—Compliance," moderated by Mr. M. W. Jensen, was held. The floor was open to all Conference attendees to discuss any administrative or technical problems the busy Conference Program might have precluded.)

OPEN FORUM: COOPERATION—COMMUNICATION—COMPLIANCE

Moderated by M. W. Jensen, *Chief, Office of Weights and Measures, National Bureau of Standards*

REMARKS DURING THE OPEN FORUM

by Margaret Dana, *Consumer Relations Counsel and author of the syndicated column "Before You Buy"*

I would like to start out by saying thank you for letting me come and listen to your 53d National Conference. I have learned a lot. One of the things I have learned is how much you don't know. You really don't know very much about consumers, do you?

Now, I know industry does not know very much about consumers. I've spent my life trying to translate to them, but I was a little surprised to discover that you, who are my best friends in this marketing world, really don't know an awful lot about the daily experiences of consumers. Let me explain what I mean.

Regarding the discussion that has been going on about the weights and measures approval seals, I am sorry to disillusion you, but I doubt if one in one million consumers knows that there is such a seal on a scale, looks for it, would understand it, or have any idea why you put it there.

The reason I say this is because I get from 5,000 to 15,000 letters a month from consumers, and when, a few months ago, I discussed the theory of weights and measures, what the weights and measures inspectors do, and what the Office of Weights and Measures of the National Bureau of Standards is, I received an avalanche of letters saying, "What do you mean? You mean somebody comes around and inspects scales? You mean that some officials check gas pumps? We never knew it."

Did you know that most consumers do not know what you do?

Now look, you are probably the most important group of people in this country at this period in our history, charged with the responsibility of keeping consumers satisfied and happy. I do not think you begin to understand your importance. I am trying to tell people about you, but do you know what I run into? I run into the darndest complications because names for what you do, and your official titles, vary so greatly even within the same State. When I tried to explain to my readers to take their problems to their weights and measures inspec-

tors, the immediate reaction I received back was, "Who is he? Where is he? What is he called? How do I find out about him?"

They ask these questions because you have so many different names and so many different departments. In modern parlance, you gentlemen have developed no public image, no identification. It is all so confused in the minds of the consumer, and you cannot find anything about it in the telephone directory. People don't know who you are.

In writing my column, I am talking to the whole country, the whole nation. Do you think it is asking too much, for the sake of the consumers, that there should be some kind of amalgamation of the terms so that wherever people live, whether it is a farm, a small town, a city, east, west, north or south, you can say, "Here is what you look for when you need to talk to your weights and measures inspectors." Do you think that is an unreasonable request?

To the consumer, *you* are the new fair packaging law. You are going to become even more important as more attention is placed on weights and measures. A few weeks ago I said in my column, "Why don't you make a point for the next three weeks or so to weigh and measure everything you buy. See if it agrees with the label."

I am still getting an avalanche of letters on that subject and you would be surprised how keen both men and women are with the idea that they get a part to play in this. They end their letter by saying, "To whom do I report this?" And I am telling you, it is a difficult thing to try to tell everybody in this country where to report.

I quite often get letters from people who say, "Well, I did speak up as you told me to, and I did go to our county inspector of weights and measures but, you see, I live across the line in another county, although I shop in his county. When I described to the inspector what goes on at some of the stores where I shop, he just got mad at me and said, 'Oh, go on, get out of here, you don't even live in this county.' "

May I ask you to watch your public image a little bit more? I like to have consumers feel that you are their friends. You are not just some machine stuck away somewhere. You are people; you are the friends that they need.

I have one final point I would like to discuss with you. Will you think about the idea that the National Conference on Weights and Measures put together a leaflet, which would describe in clear, simple words, what you are all about, what you do, why you are here, why you are a service organization, how you work, and how to reach you?

I have requests every day in the year for that kind of information. I probably need to send out 20,000 to 30,000 leaflets right now.

Will you think about it? Maybe we could bridge this communication gap and people will begin to give you what you deserve: understanding of the great service you are performing.

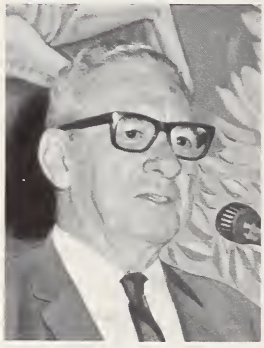
Thank you for letting me talk to you.

MORNING SESSION—WEDNESDAY, JUNE 19, 1968

(R. T. Williams, *Vice Chairman*, Presiding)

TWO-WAY DIVIDENDS FROM INDUSTRY-GOVERNMENT COLLABORATION

by D. S. Ring, *General Counsel, National Paint, Varnish & Lacquer Association*



In discussing the benefits from industry-government collaboration there is need for calm deliberation and logical consideration of down-to-earth facts, rather than histrionics or oratory. I will try to keep this discussion factual and logical, to the best of my ability. I will, therefore, recite some of the experiences I have had personally and some which I have observed with respect to this topic.

It seems to me that outstanding guideposts on the road leading from the proposition advanced to the conclusion reached, must be established in the light of the fact that in these days the preponderance of industry is organized to act and speak on public matters through business leagues and trade associations. In referring hereafter to industry, I am referring to the associations representing particular industries with respect to public and community relations, as well as with respect to relations between industry and the Government. Just as the Government has its agencies and bureaus acting to represent the people as a whole in enforcing the laws which legislative representatives of the people have put on the statute books, the multifarious trade associations occupy a similar representative position for the various industries involved.

I give you these guideposts:

1. A government agency at the federal, State, or municipal level generally can, through one instrumentality, reach virtually all of the individual members of any given industry by dealing with the business league or trade association representing that industry.

2. The course to be taken is one of voluntary cooperation. This is a two-way street based upon the reasonable assumption that it is best for both Government and industry in the long run to work hand in

hand in securing compliance with the laws of our country rather than taking the route of forcing compulsory compliance through invocation of the administrative or judicial process on a case-by-case basis, which in the long run multiplies, in any given industry, a thousandfold the work of enforcement and expenditure of funds.

3. Both industry and Government must deal with one another on a common ground of good faith, which rarely fails to produce mutual respect and tolerance on the part of each party for the position or viewpoint of the other.

4. Voluntary coperation programming and procedure is economical for both Government and industry, Reliance upon compulsory compliance on a case-by-case basis is needlessly extravagant and wasteful.

Let me give some illustrations to support my first premise as to the benfits of voluntary cooperation between government and industry.

During World War I the shipbuilding industry was faced with a turnover in personnel which was extravagant and unnecessary in the various shipyards. When the Maritime Commission, foreseeing the need for ship construction in World War II in 1939 and 1940, decided to embark upon a vast shipbuilding program, one of the first things that Admiral Emory S. Land, the Chairman, took up was some method of preventing a repetition of such matters.

After long consideration and study, it was decided that the working force in shipyards could not be stabilized by Government ukase and that the only answer was *voluntary cooperation* between industry as represented by both management (the American Shipbuilders Council), labor (the AFL and its trade unions in the metal working areas, and the CIO, then independent, through its industrial union of shipyard workers), and the Government as the third party.

Throughout the war, this tripartite group functioned with less labor turnover and less spiraling costs than even the most optimistic ever anticipated. Decisions were made on the basis of consent by all three parties. Cooperation was voluntary in the true sense of the word.

The Nation was divided into four areas where standard rates and working conditions, which included high safety and hygiene requirements, were promulgated. These areas were the Great Lakes, the Atlantic Coast, the Gulf Coast, and the Pacific Coast, in each of which basic conditions were the same.

Once standard conditions were put into effect, there was a marked deceleration of attempts to pirate labor on the part of employers and to seek new positions in other yards by workers.

Let us look at another illustration. When the Hazardous Substances Labeling Act was made law in 1960, industry slowly but vigorously presented its views concerning regulations to the Food and Drug Administration in a way which within two years produced standardized labeling for virtually all products covered by the Act. This

standardized labeling, which has been hailed as highly satisfactory by Government and industry alike, resulted from voluntary cooperation.

The Food and Drug Administration has recognized the value of voluntary cooperation by industry and Government to the point where a very important and special division has been established there under the direction of Gen. Fred J. Delmore. Only recently a highly successful Labeling Seminar was conducted under the sponsorship of General Delmore's division with the cooperation of the National Paint, Varnish and Lacquer Association and the Chemical Specialties Manufacturers Association. It was so successful that it has been determined to present similar programs in various cities of the United States in the furtherance of voluntary cooperation.

This is not the only instance of a major breakthrough for voluntary cooperation. Since Earl Kintner was Chairman of the Federal Trade Commission, that body has been moving vigorously to employ the good offices of trade associations in securing voluntary compliance with laws involving fair competition and pricing. Advisory bulletins are now being issued from time to time by the FTC when problems confronting a member of industry arise so as to permit the industry association involved to make all of its members aware of the dividing line between legality and illegality. Even codes of ethics for industries have been reviewed by the FTC and through Advisory Opinions the industry has been given the guideposts to legality and the warnings against procedures which might be illegal.

In another instance the representatives of various industries under the Chairmanship of Frank Dierson, and with the encouragement of many of your members, have set up an overall industry committee representing various groups affected by weights and measures. The revisions in the Model Law and Model Regulations recently promulgated by the National Conference on Weights and Measures received support and approval by this committee (which was in reality a federation of trade associations) so that states desiring to enact such legislation could feel certain of industry support of regulations and laws that followed such models. These results of voluntary cooperation have been hailed alike by both government and industry.

The Secretary of the National Conference, M. W. Jensen, now has only to pick up a phone and call Frank Dierson with respect to any existing problem and be assured of real and careful consideration being given by all industries coming under weights and measures regulations in all the states. Frank Dierson on the other hand merely has to pick up a phone and call Mac Jensen to make sure that any problem facing industry will be brought to the attention of, and, when necessary, be started on the road to solution by, members of the National Council from one coast to the other.

What I have just said I submit amply justifies the conclusion that my first and second guidepost propositions are and you know as well as I do they have been justified in actual practice.

My third proposition involves mutual good faith on the part of the representatives of Government and industry. Among reasonable men, I believe, familiarity far from breeding contempt, actually creates a friendly and *cooperative* climate productive of mutual benefits to both parties.

Industry has found a lack of horns, hooves, or pointed tails in the physical and figurative makeup of Government representatives. From time to time Government representative have been surprised at the support they received from industry in overcoming opposition by a minority of recalcitrant members whenever reasonable proposals have been made.

There was a time when the first job an industry representative needed to do in dealing with a Government official when proposals were being made was to dissipate a fear that someone was trying to "put across" something. Today, as each group has gotten to know the other, the attitude of suspicion has been reduced to a minimum and acceptance of the sincerity of one party by the other in complete good faith has thrived.

Among weights and measures officials, none lasts long unless he is fair, reasonable, and dedicated to proper and efficient enforcement of the law. On the other hand, industry cannot afford to keep connivers, corner-cutters, or shysters in any representative capacity.

The experience of each of you, therefore, must reflect the truth of the proposition that there have been vast benefits flowing from the good faith which has resulted in the close association in voluntary cooperation between Government and industry.

And now, for the last and concluding proposition, the dividends which flow from such collaboration. It is so obvious as to be axiomatic that when one Government agency charged with the enforcement of a particular piece of legislation wishes to secure compliance, there is no better way to secure it than through the association representing the industry involved.

Of course, without guidance of the business league or trade association, individual industry members might prove resistive and unresponsive. In such cases it becomes necessary to proceed on a course of litigation which is obviously highly expensive on a case-by-case basis.

In conclusion, I want to say that of far more value than the money that is saved to both industry and Government through such voluntary cooperation as I have been speaking of and the vast voluntarily cooperative projects which you know of, but which I have not mentioned, it is the satisfaction of all of us that we are providing inmeasurably greater benefits for the public, the boss of both of us, in

the long run through voluntary cooperation than otherwise and that we are discharging our responsibilities with integrity. In a true democracy such as ours, a prime product of our freedom is the satisfaction which comes from having both Government and industry enjoying two-way voluntary compliance in the national interest.

Those are the dividends that arise from industry-Government collaboration.

PACKAGING STANDARDS FOR FLUID MILK PRODUCTS

G. W. Spotts

Supervisor Technical Service Department, Shell Chemical Company, Woodbury, New Jersey

The dairy packaging industry is one of the most complex systems in this country. The packaging of fluid milk and fluid milk products is an enormous activity which at some time or other affects each and every one of the 200 million people in these United States.

The vast and highly important dairy industry has subscribed to various packaging standards for many years. Many benefits have been realized as a result of the following standard packaging practices.

One primary benefit resulting from standardization is economy. The present price of milk at approximately $1 per gallon could only be possible through mass production of standard containers and handling equipment. Since milk products play such an important role in the diet of all of our people, the economic benefit of standardization cannot be overemphasized.

Another benefit resulting from standardization of fluid milk packaging is consumer protection. The present-day consumers can be reasonably certain that when they purchase fluid milk products, they will receive the specified quantity and quality. Deceptive packaging is virtually unheard of in the dairy industry.

Another benefit of standardization and certain restrictions for milk products is protection for the dairyman. If there were no standards or restrictions on milk products, producers of top quality products would suffer economic penalties at the hands of poor quality producers. If no standards existed, the dairy industry, as any other industry, would probably result in chaos.

The fluid milk packaging industry has witnessed many changes during the past six years. In the area of small size containers (less than one gallon), paperboard containers have replaced many of the

traditional glass bottles. The original wax-coated paperboard container has been almost completely replaced by plastic (polyethylene) coated paperboard. More recently, since 1962, all-plastic containers have replaced many paperboard and glass containers, especially in the gallon and half-gallon sizes. At the present time, there are four types of containers for fluid milk products commonly found in both retail and wholesale markets as follows:

1. Glass
2. Plastic-coated paperboard
3. Semi-rigid all plastic
4. Plastic bag in paperboard box.

One of the packaging standards of major concern to all of us is the volume standards. It is the responsibility of all of those who manufacture and/or fill containers (packages) for fluid milk products to comply with the volume standards set up by the Office of Weights and Measures of the National Bureau of Standards. It must be the goal of all individuals involved in fluid milk packaging to deliver, as near as possible, the stated quantity of product to the consumer. Suppliers of raw materials to producers of packages for fluid milk products have a responsibility to aid these producers in the design and fabrication of packages that achieve this goal.

Packages must be designed to accommodate two types of filling equipment used in the dairy industry today. One type of filling machine is designed to fill containers to a predetermined level. The volume of the container in this instance determines the volume of product delivered. Another type of milk filler is designed to deliver a predetermined quantity. This may be accomplished by a pre-set filling time or by volumetric displacement or by weight. Thus, the adjustment to the filling machine determines the actual quantity of product delivered.

For guidance on reasonable volume tolerances, we refer to NBS Handbook No. 44 for containers such as glass bottles which are considered measuring devices which control the quantity of product delivered. For guidance on reasonable volume tolerances for other types of packages such as paperboard, semi-rigid plastic, and plastic bags, we refer to NBS Handbook No. 67. The volume tolerances specified by these two publications are the result of a statistical analysis of a vast number of samples and cooperative effort between several industry trade associations and the Office of Weights and Measures.

Regardless of the type of package used or how it is filled, it has been established that unreasonable shortage in any individual container is not acceptable; and unreasonable averages and shortages cannot be considered compensatory. The importance of conforming to the specified volume tolerance should again be emphasized.

Another area where standardization of dairy packaging has resulted in economies is the standardization of equipment. Dairy packaging equipment must be fabricated from rather expensive alloy steels in order to prevent corrosion and to meet Public Health Service sanitary requirements. If it were not for reasonably standard container sizes, the cost of milk filling machines would be prohibitive.

In addition to the expensive filling equipment, it has been possible to standardize capping equipment, but to a somewhat lesser extent. Also, carrying cases and handling equipment have been standardized.

At the present time, there is some concern in the milk packaging industry over the nonproliferation aspects of the Fair Packaging and Labeling Law. Fluid milk products have for many years been packaged for retail and wholesale in six different sizes as follows: ½ pint, ⅓ quart, 1 pint, 1 quart, half-gallon, and gallon. More recently, three additional sizes of containers have appeared as follows: 1½ gallon, 2 gallon, and 2½ gallon. Small quantities of specialty items have also appeared in 10 ounce, ⅝ ounce, and ½ ounce sizes. While the larger containers were introduced, none of the smaller sizes have disappeared.

According to a recent USDA survey, over one-half of the sales of whole and skim milk products are in half-gallon containers. Sales of mixtures were predominantly in smaller containers, with quarts and pints representing 88 percent of total sales in this group. Forty-three percent of cream sales were in half-pint containers. Sales in containers larger than one gallon represented only 6 percent of total fluid milk sales, ranging from 2.5 percent in mixture to 6.5 percent in whole milk items. The majority of sales in larger than one-gallon containers are wholesale, in sizes greater than 2½ gallon with 1½, 2, and 2½ gallon containers used for home delivery.

The size of the container is ultimately determined by consumer demands. Consumer demands are influenced by: (1) The existing economic structure. (2) By certain sociological aspects. For instance, the gallon container was introduced as an economy move. The gallon container was also designed to satisfy consumer demands following the rural to urban movement. Further, economy packages were very popular during recent years when children from the post-World War II population boom were in their early teens.

The changing pattern in milk container sizes in the four-year period from 1962 to 1966 is shown below:

Size of Containers: (percent of total product)

	Gal	*Half Gal*	*Qt*	*Pt*	*½ Pt*	*Other*	*>1 Gal*
1962	13	51	17	3	11	<½	5
1966	17	52	11	2	11	1	6

If we go back a few years beyond the above chart, we see a definite trend in the sales of fluid milk products. There has been a steady in-

crease in the proportion of fluid milk sales made through wholesale outlets. In the three-year period from 1963 to 1966, the wholesale market increased from 70 to 75 percent. This trend affects not only the type of container, but the size of the container as well.

Another trend in sales of fluid milk has been from small to larger size containers. The quart, once the most important container for fluid milk, has decreased in importance until it now represents less than 12 percent of total fluid milk sales. The shift away from the quart container has been to the gallon container in wholesale and to half-gallon containers for home delivery. Sales in larger than gallon containers represent only about 6 percent of total fluid milk sales. The larger plastic containers are relatively new and are replacing metal cans on wholesale routes and some are being used for home delivery.

The big question is whether or not the trend in larger size containers is going to continue—*probably not.*

If we analyze the trend in milk consumption and trends in population deployment, we may arrive at some interesting speculations.

The trend in total domestic milk consumption is downward, as shown in figure 1.

During the same period of time, our population has been steadily increasing. In 1960, the population was approximately 183 million. By 1967, our population has increased to approximately 200 million.

Thus, the average consumption of fluid milk products per person in the United States had dropped during recent years, as figure 2 illustrates.

There are several reasons for the reduction in consumption of fluid milk products. One of the obvious reasons is the competition from soft

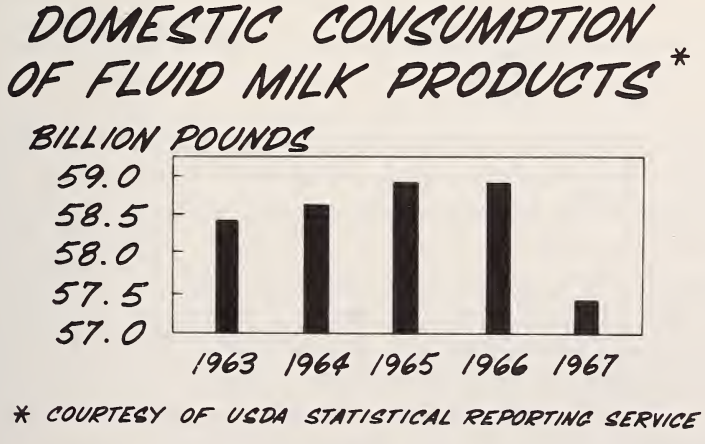


FIGURE 1

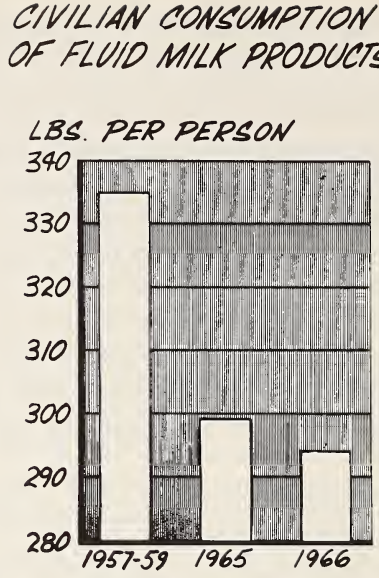


FIGURE 2

drinks and fruit juices. Far more money is spent on advertising of fruit juices and soft drinks than is spent on advertising milk products.

The main, but not so obvious, reason for the decline in the average consumption of fluid dairy products is the deployment of our population.

The single factor which has the most influence upon the size of milk containers is the size of the average household. The size of the average household has been reduced in recent years.

Family and Household Sizes

Average Family	*Average Household*
1940/3.76	3.67
1965/3.71	3.31

The reduction in the size of the average household is the result of longer life expectancy, more independent home owners, and lower birth rates. The average life expectancy has increased approximately 15 years from 1920 to 1950. Most of the senior citizens live in their own homes and do not consume very much milk. The birth rate has recently dropped to an all-time low (lower than the birth rate during the depression of the '30's). The total number of babies born each year is increasing, yet the birth rate per capita is decreasing; thus, there are more and smaller families. Actually, the decline in birth rate has been going on for 30 or 40 years. The post-war increase was only a temporary deviation.

There are many factors which influence the deployment of our population, but nonetheless, the smaller households demand smaller fluid milk packages. It then appears that there will be very little demand for fluid milk packages larger than one gallon in size.

Another factor which affects the demand for certain size milk packages is the availability of convenience stores. The increase in the number of convenience stores during the past few years has contributed to the decline in sales of home delivered milk. Where convenience stores are prevalent, there seems to be little demand for larger than one-gallon fluid milk packages.

To conclude the discussion on fluid milk container size trends: The consumer will determine the size of package used by the supplier. With the decline in milk consumption and the reduction in the size of the average household and the availability of convenience-type stores, it appears that the wholesale and home delivery market for fluid milk packages larger than one gallon will decline.

The previous comments pertain to milk containers of all four of the common types. With the rapid increase in the growth of all plastic milk containers, it seems timely to review this subject briefly.

The growth of all plastic containers for fluid milk products has been as follows:

U.S. Dairies Using All-Plastic Milk Containers

January 1964	12
January 1965	90
January 1966	380
January 1967	700
January 1968	965

At the present time, there are approximately 38 custom blow molders producing all-plastic containers for milk. In addition, there are approximately 23 dairies with in-plant blow molding operations. The consumption of all-plastic containers for milk now exceeds 13 million containers per month, mostly in the gallon and half-gallon sizes. Approximately 3 percent of the total fluid milk sales are in semi-rigid all-plastic containers.

Standardization is highly important to producers (blow molders) of lightweight semi-rigid all-plastic containers for milk. Blow molders were quick to realize the importance of conforming to volume standards. Most all-plastic containers are filled on filling equipment that was designed to fill rigid glass containers. These filling machines are designed to fill the containers under vacuum and to a specific level. These fillers do not allow for any lack of uniformity in the container.

Developing an all-plastic container that meets all standards and also meets consumer demands has not been an easy task. The Plastic Industry Trade Association (The Society of Plastics Industry, SPI) formed a special committee to conduct an extensive program designed to aid molders and dairymen in producing containers that meet all requirements. The special committee represented the Plastic Bottle Division at the SPI, which encompasses over 35 plastic bottle molders and material suppliers, many of which are major U.S. corporations. (All divisions of the SPI encompass over 1300 raw materials manufacturers, processors, fabricators, and machinery manufacturers). This special SPI committee greatly appreciates the splendid cooperation they received from the Office of Weights and Measures. As a result of the program and the cooperation of the Office of Weights and Measures and with the aid of filling equipment manufacturers, a reasonable solution to the volume problem was obtained.

Dimensional standards is another area where standardization is important to the plastic milk container industry. Most plastic milk containers are sealed with conventional closures that require a substantial force for installation. Milk bottle closures are manufactured by approximately seven major suppliers. Each supplier had previously established certain dimensional standards that deviated a slight amount from each other. These slight deviations in certain critical dimensions made it impractical for molders to produce a universally acceptable container. The dimensions of the container finish and the closure must be uniform and based upon the same nominal size if they are to be compatible. A cooperative program between the National Association of Sanitary Milk Bottle Closure Manufacturers and the SPI was formed to resolve the problem. This cooperative effort has resulted in a reasonable solution to the capping problem.

Many advantages of standardization have been mentioned. However, disadvantages should also be considered. The basic disadvantage to package standardization is the restrictions placed upon design. Novel and varied designs may be an effective tool which can help to increase the per capita consumption of fluid milk, a goal which is highly desirable to all of us. (Approximately 50 percent of our population has below-standard diets due to inadequate consumption of fluid milk products.) Fortunately, plastic materials offer a high degree of design freedom. Therefore, we believe that it is possible to design novel and attractive containers for fluid milk products with present-day materials that will satisfy all of the existing standards.

In Conclusion: The present standards for fluid milk packaging, as illustrated in figure 3, appear to offer adequate protection for both the consumer and the producer without overly restricting the design of the container.

FIGURE 3

LABEL MANUFACTURING UNDER THE FAIR PACKAGING AND LABELING ACT

by FRANCIS R. CAWLEY, *Executive Director, Label Manufacturers National Association, Inc., Washington, D.C.*

Mr. Chairman, distinguished guests, ladies, and gentlemen. Perhaps some of you here today can still remember, along with me, the preoccupation of the average family with food requirements still common after the close of World War I.

At least, in a representative midwestern city, you may recall it was customary that, long before the fading days of fall gave way to winter, the average household had several bushels of potatoes and apples in the storeroom, a side of pork on the back porch, and mother's pride of prides—some two or three hundred quart jars of home-canned fruits, vegetables, and juices—on the basement shelves. And of course in those days, the pets got the scraps.

You may also agree that much of this absorption with the winter's food supply has diminished today because of:

1. The miracle of modern production and mass distribution.

2. The reduction of food costs in the market place to less than 18 percent of the average family's disposable income.

3. The statistical fact that more than 140 million Americans—seven out of every ten—are now crowded on just 2 percent of our land.

4. The convenience of home freezing.

5. The advent of the supermarket with its built-in maid service for many modern day consumer products.

Families in more than half the world are still greatly preoccupied with obtaining food that is far from adequate. In the United States our lessening concern for basic requirements has given rise to a greater demand for a vast host of other consumer items outside the food category, and this is rapidly expanding. Nonfood consumer items rose by approximately 21 percent in 1965, and added another gain of 16 percent in 1966.

Under Secretary of Commerce, Howard J. Samuels, recently stated that, "We spend as much for chewing gum as for model cities. We spend as much on hair dye as for grants to urban mass transit. We spend as much on pet food as on food stamps for the poor. We spend more on tobacco than Government at all levels spends on higher education. We spend $300 million for costume jewelry . . . ." The consumer sparks the demand; we make the labels.

This drastic change in consumer buying habits, occasioned by ample supplies and personal convenience, has resulted in the greatest consumer pipeline the world has ever seen. It doesn't take too much stretch of the imagination to place an estimate on the number of containers (cans, bottles, packages, and wrappers) used in a single year for consumer products, *at a total of two hundred billion items.* As I have developed this figure and reviewed it over the past several days, I am now convinced that it is very conservative.

Two hundred billion containers! This means that each man, woman, and child in the United States requires at least one thousand containers throughout the course of any one year. A nervous executive, who consumes three packs of cigarettes per day, would account for his quota without any additional allowance for eating, drinking, or digestive aids. An infant, whose diet has reached the stage of strained food, would account for his quota of containers, if he consumes the contents of three small jars per day. And before long, he will be rushing out into the street for popsicles and ice cream, thus increasing his annual quota. Finally, there is the office secretary who munches mints and cracks gum, and who probably accounts for at least one thousand packages with her in-between meal snacking alone.

It is not difficult to envision one thousand packages per person per year under circumstances outlined above. There are always excesses, or extremes, which will make up for any low individual use, whether a person is addicted to bleach, booze, or tobacco. You, as individuals, are undoubtedly responsible for far more than one thousand packages or containers per year. All of these require identification and sales promotional statements. In short, billions of labels.

I cite these figures to dramatize the critical situation of Label Manufacturers who are being called upon to continue the supply of labels

and at the stime time, revise and standardize container identifications, or labels, for the billions of items that flow through the consumer pipeline annually. At the moment, our customers operate under complex and varying sets of rules.

With this great volume of work facing it, the Label Manufacturing Industry and its customers in recent months have been in no small way like the Red Queen in Lewis Carroll's famous story, when she complained—"Now, here, you see, it takes all the running you can do, to keep in the same place. If you want to get somewhere else, you must run at least twice as fast as that!"

If we had more trained personnel for preparatory work and could keep our presses fully occupied, we probably could meet the demands of the new Law in a much shorter time. However, since it has always been necessary for our customers to anticipate by many months the flow of goods in the consumer pipeline, the added complexity of effecting revisions under the new Law, as Federal Regulations are promulgated, may result in large inventories that will not fully measure up to all the new requirements. However, I don't believe the Congress ever intended that we halt the flow of consumer goods to the marketplace, or resort to a lot of patchwork pending the issuance of regulations under this Law.

The Fair Packaging and Labeling Act (Public Law 89–755) was approved on November 3, 1966, and it was almost a year before the first final rule under this Law became effective. Other proposed Rules are currently in one stage of consideration or another. I most certainly am not complaining because it speaks well of the democratic processes envisioned by the Law, but it has created a hiatus during which manufacturers of consumer goods have been in a quandary as to what future identification requirements would be, posing problems that I feel will affect the market place for several years to come.

As early as January, 1967, we assembled over one hundred representatives of our industry at a meeting in Chicago, for the purpose of anticipating what would be required in compliance with the new Packaging Law. On advice from various Federal agencies we were able to establish the fact that weight declarations would emphasize the ounce content, that type sizes would approach a uniformity similar to the then existing requirements of the Model State Code, and we achieved some understanding on uniform location with respect to weight declarations.

Since that time, with the continued help of the various Federal agencies, we have kept our members apprised daily of attitudes and rulings under the Law, and in every way attempted to anticipate the requirements that would eventually take concrete form in Federal Regulations. One example will serve to illustrate the problem: The control of hazardous substances is split between two agencies, the Food

and Drug Administration and the Federal Trade Commission. Until the final rule on nonfood products was issued recently by the Federal Trade Commission, manufacturers of hazardous substances had little alternative but to follow the old rules and regulations, if they wished to keep their products in the market place, or introduce new products.

Another aspect of the Label Manufacturers' problem, which I believe is not fully understood, has to do with the legal requirements concerning label statements. For many years it has been the trade custom of the label industry that legal responsibility for statements on labels rests with the customers and not the label manufacturer.

Despite this fact, we opposed the Fair Packaging and Labeling Act on behalf of our customers because we sincerely believed that the Law was unnecessary.

Despite this fact, the label industry provides its members with more than 40,000 copies of rulings and regulations each year so that they can assist customers.

Despite this fact, we have done everything in our power to effect voluntary compliance with the new Packaging Law.

At the same time, we anticipate that regulations will be issued under this Law from now until at least 1970, because in my conversations with many representatives of agencies, who regulate products not covered by Fair Packaging, I am convinced that even though exempted, the labeling requirements for these products will eventually be brought in line to conform with the final rule on food approved under the Fair Packaging and Labeling Law. This is a good direction.

Label manufacturers and their customers welcome this approach on the part of the entire Federal Executive Branch, as it will eventually give us a fairly common blueprint with which to standardize our label and package requirements at the Federal level.

If I had a single appeal to make to representatives of the State Weights and Measures agencies assembled here today, I would urge you to keep your Model Requirements as identical to those of the Federal Government as possible. If we can standardize the requirements for labels on goods moving in both intra and interstate traffic, it will help us reach a higher degree of compliance in a shorter period of time.

According to the firm of Ernst & Ernst, who conducted a survey among nineteen major labelmakers, it was found that necessary modification of 167,000 active plates would require a minimum of three years, assuming the employees devoted full time to this task. However, since much of their time is required for manufacturing labels for new products, and maintaining the supply of existing labels, the full task of compliance might require as much as five years.

I would again remind some of my friends in the Federal agencies, and perhaps a few representatives of the State agencies, that labels

are not manufactured one at a time. The very nature of this remark may shock you, but on occasion I have had to explain that our label-printing presses are capable of dropping up to five thousand 43″ x 60″ sheets, four color and varnished, per hour. On certain can labels, this means that at full speed, offset presses can produce approximately 200,000 labels per hour. Our concern, under these circumstances, is that new labels or revisions, intended for use this year and next, are as accurate as possible before we push the button. The tremendous investment in high-speed capacity is futile if its use is impeded because of changes or uncertainties in label requirements of either Federal or State Laws.

Prior to January 1st of this year, we have met our customers' requirements, often on short notice and, in many instances, used existing plates because of technical personnel shortages and customer need. There is no doubt in my mind the production of labels under these circumstances has resulted in inventories for which extensions are now being granted by the Federal Government, and on which I am advised the several States will be notified. Many of our customers were able to anticipate their requirements sufficiently in advance to effect label modifications on reorders and new labels prior to January 1st. Under the circumstances, we believe we have discharged our responsibility to our customers, to the best of our technical capacity.

Our customers report that there are existing conflicts between State and Federal Laws and, of course, complain about the time and cost factors involved in manufacturing different sets of labels for local use than are required on the national level.

I sincerely believe the enormity of the consumer product industry of America demands that we standardize and simplify label requirements for identification and weight. I believe this can be accomplished and still give our citizens the most wholesome food and other products at the lowest cost of any nation in the world. We can make the new Law work, if given time.

Goods must continue to move in the pipeline. We have gained unsurpassed supremacy with our great skills of mass production. Every effort should now be made to speed up and assist the process of mass distribution. The Federal Government leaned heavily on the State Governments in adapting their regulations under this new Law. Reciprocity on the part of State Governments now would make a substantial contribution to further improvement in the economics of our mass distribution.

Gentlemen, without uniformity of label disclosures, we could nullify the basic purpose of the Fair Packaging and Labeling Act which was to eliminate the confusion to consumers in the marketplace. If the

consumer is "king," the "king" will demand such uniformity that can only be accomplished by complete Federal pre-emption. I do not believe this was intended, or is necessary.

I mentioned earlier that currently more than 200 billion items of consumer products are being used by the people of this nation. Who can foretell the additional billions which will be distributed in 1970, or ten years hence? The progress we have made must not be retarded. We all must share in the grave responsibility of managing our abundance in a greatly expanding economy.

PROGRESS THROUGH COOPERATION

by H. J. Sheerin, *Vice President and Director, Kimberly-Clark Corporation, Neenah, Wisconsin*

Cooperation is the very cornerstone of a successful venture, wherever people are involved—be it a marriage, an athletic team, a company, or a nation. Many other virtues and abilities help to make a venture successful, but of all these, cooperation is the most important.

It is an honor for me to be in Washington today to review with you what we in the paper industry believe is an enviable record of cooperation and constructive accomplishment on behalf of the American consumer.

It's a progressive record; one of which this Conference, as well as members of our industry, can be proud. And in the midst of the current tidal wave of interest in consumer protection, it's a record that should be dusted off and reopened, both as a reminder of what Government and business can accomplish in meaningful consumer service through communication, understanding of our respective objectives, and teamwork as a guideline for the future.

Just as one hand can't applaud, neither can Government or industry succeed alone in this business of sticking up for the consumer.

For those of you who do recall some of the early work of the National Conference with the paper industry, I should mention that the Tissue Division (until 1967 known as the Tissue Association) is now a part of the American Paper Institute, the national trade association of the pulp and paper industry. Our Division represents some 60 manufacturers of consumer paper products, including facial tissues, bathroom tissue, paper towels, and napkins. It is responsible for more than 85 percent of the production of these products in the United States, and is the only paper industry group within API that goes directly to the consumer with its products.

As a consumer products industry, we in the sanitary tissue business have the dual objective of satisfying consumer wants and managing a successful business. To accomplish both objectives, we must be continually aware of three factors in the development, production, and marketing of our products. First, and most important, are the utilitarian values of the product. Does it meet a real consumer need? Second, are the subjective or aesthetic values such as color, size, shape, and packaging. And finally, there are the economic realities of manufacturing and distribution.

We have a business philosophy in the Consumer Products Division of Kimberly-Clark that comes close to being a guideline followed in our industry—and in most consumer products industries. Simply stated, we believe in: (1) Using foresighted and farsighted research to find the real needs of consumers. (2) We are dedicated to improving existing products and developing new products to fill these needs. (3) It is our goal to make our products available to Mrs. Consumer where she wants to buy them, when she wants to buy them, in the form which is acceptable to her, at a price which she considers a good value, and at a reasonable profit.

We are certain that this formula of full and fair service to our customers is essential to our business livelihood; we also know that achieving a proper balance between product value and the economic realities of production and distribution is a matter of judgment with each individual company. Inevitably there are going to be differences in how each company chooses to design, produce, and market its products. And these differences are the substance of our competitive and growing economy.

While we are firmly dedicated to preserving a system of independent action in the marketplace that will foster innovation, new product development, and a wide choice for the consumer public, all responsible businesses believe that the products they decide to market should be honestly and informatively packaged and labeled.

Recognizing that this is an area where some rules of the game must be maintained, our industry has worked with the National Conference on Weights and Measures for many years. To provide a complete picture of just how long and how effective this relationship has been. I've had to turn to two former associates whose knowledge of the Tissue Division's work with these Conferences predates my own career in the paper industry.

The two are Bernie Hopper, who served Kimberly-Clark as government sales manager for more than two decades, and Ross Fife, former executive secretary of the Tissue Association. Both of these gentlemen, now enjoying retirement, send their very best wishes to old friends here today. And both recall the highly responsible and helpful assistance this group has given to the tissue industry over the years.

It's with the good assistance of Ross and Bernie that I'm able to trace for you what we in the sanitary products industry believe is a meaningful record of accomplishment on behalf of consumers.

Cooperation isn't just a chapter in that relationship, it's been the whole book for nearly four decades. And our industry believes this productive association is in large part responsible for our confidence that there will be continued progress in paper products packaging and labeling procedures, now that there is increased federal concern and involvement.

The paper industry has been one of the leaders in recognizing the need for standards and guidelines to prevent abuses in labeling and packaging. We have always been willing to work toward standardization of size and count for our products when the consumer could be the beneficiary. We have been as cooperative as we could, and we think the results have been constructive.

As early as 1941, agreement was reached with the "Methods of Sales Committee" of this organization on a number of packaging and labeling principles for tissue products that still stand today, with necessary modifications. One was a standard form of complete quantity declaration for facial tissues and bathroom tissue which included prominent statement of sheet size and unit count.

Your cooperation and understanding, then as now, has been important to us because the idea of standardization of products is not completely an unmixed blessing from the viewpoint of production, product management, and product development. Many factors, including the dimension of the base stock, size and capabilities of converting equipment, waste, and packaging have an effect on standardization of tissue products. All contribute to the economics of our business, and have an impact on the acceptability of a standards change or a new standard, for several reasons:

1. Because we know that if a standard doesn't fit manufacturing equipment, we're in trouble.

2. If it doesn't fit the changing needs of the consumer, we're in trouble.

3. If it doesn't fit a new product, we're in deep trouble.

But if the standard can really help Mrs. Consumer, we also know we must work toward implementing it, and we have.

We found years ago that your organization has, in considering our industry's products, always focused on avenues of fact finding; that you have been conscious of the *manfacturing* and *marketing problems* of our industry; and that you have had an open mind and a disposition to be reasonable and fair in considering items of debate or areas we considered to be problems.

An example of this willingness on your part to work for fair and reasonable standards recommendations for tissue products is detailed in the reports of this Conference in the late 1940's. As long ago as the 33d National Conference in 1947, a recommendation was adopted relating to slack fill of facial tissue packages. It was the strong feeling of your committee that inside height tolerances should be specified for these cartons. After discussions with our industry representatives through the office of the Tissue Association, it was clear that our members felt that the tendency of facial tissues to expand in the package made the tolerances suggested too restrictive. Consequently, five members of your committee, with the cooperation of the Tissue Association executive secretary, surveyed a number of tissue mills in July 1948. As a result of this study and the data obtained, the 34th Conference in 1949 accepted the industry tolerance recommendations, and we as an industry were able to comply.

Our industry was also able to work with this conference on preparation of the first model regulations and model laws for paper products, which subsequently were adopted by many of the States.

These regulations were established in a spirit that kept essential utilitarian and aesthetic values of tissue products, as well as the economic realities of manufacturing and distribution in mind.

Throughout our work together we have seen many modifications of the standards labeling procedures as our products have changed. We have submitted labeling and packaging recommendations for new consumer disposables as they have been developed and moved onto retail shelves. We have said what we can do from a practical standpoint, to eliminate possible misleading statements of quantity, and we have done it.

As the standards for paper products have evolved, we have worked with Weights and Measures people on local, State, and Federal levels to help assure that our members were fully informed. Our industry's trade association has published for its members a series of continuously updated booklets on the labeling of sanitary paper products. These booklets have included all pertinent portions of model State laws and regulations as well as the recommendations of the National Conference on Weights and Measures, applicable to our products.

Additionally, for more than 20 years we have had an effective and workable procedure of cooperating with weights and measures people by bringing complaints to the attention of our members, whether these complaints were received by the Association directly from the consumer or from your offices. The complaint forms have changed frequently, but their purpose remains the same today: *To alert sanitary products producers to possible valid deviations from established standards recommendations and regulations, and to provide an opportunity for voluntary correction.*

We have found nearly 100 percent cooperation of our membership, and we have determined that these cases of mislabeling brought to our attention have occurred in most cases through a change of personnel responsible for labeling and packaging, or because copywriters have been ill-informed on the standards procedures, rather than by any intent to mislead or confuse.

We also have maintained a working relationship with weights and measures officials through a standing industry committee on standards of packaging and labeling.

So much for our industry's historical involvement in the packaging and labeling area. What about our activity now that Congress has decided that supervising packaging and labeling of consumer products is a responsibility of the Federal Government?

The Fair Packaging and Labeling Act of 1966 represents top level recognition on the part of the Federal Government of our joint efforts in the past. The very concept of some sections of that law is a direct result of the work of these Conferences.

As you know, industry generally was not 100 percent convinced of the need for this legislation, in part because we see duplication and conflict in many areas with model laws already in force and apparently fully effective. But our industry has been and is willing to work with the Federal Trade Commission and the Commerce Department as we have in the past, when our joint action will lead to purposeful help for the consumer. We wholeheartedly endorse the voluntary procedures permitted by the new law, but we are guided in our relationships and ability to comply by the effect new standards will have on the value and appeal of our products to the consumer, and our ability to produce and distribute them economically.

In the past year, members of our packaging and labeling committee have met frequently with representatives of the Commerce Department and the Federal Trade Commission to obtain clarification and interpretation of regulations developed to implement the new Law. Most of the questions we have raised have been answered by clarification of the originally proposed regulations by Mr. Charles Sweeny and his associates. In those few instances where there still is a question, we are working to resolve them.

One area in which we immediately sought clarification involved the impact of the new regulations on decorative packaging of facial tissues. This is one of only a few products bought in the store and used and displayed in the home in the same container. These packages aren't hidden in the kitchen cabinet or in the bathroom medicine cabinet like cereals or toothpaste. They must shout, "Here I am" in the store and still fit inoffensively and attractively into the home when displayed openly in the same package.

Most manufacturers in recent years have tried to make the facial tissue package more decorative so that it can effectively handle its dual role to the satisfaction of the homemaker. But it isn't easy to provide an attractive package and still comply with a regulation that calls for reserving 30 percent of the principal display panel for a full description of contents.

There are ways of solving this problem, of course. One is to put required contents information on a removable polyethylene overwrap, leaving the carton design free of printed matter. Some product is now being offered in this type of package. But dual packaging is far more costly, and our industry felt there had to be a more economical way of complying with both consumer wants and the new regulations.

But once again, through mutual cooperation, we now have the agreement of the FTC, that permits putting the quantity declaration on the tear out panel of facial tissue packages. With this permissible modification, labeling information essential to the consumer for making buying decisions and value comparisons in the store, pops off as the package is opened, leaving an attractive package to display in the home.

Another major achievement in the past few months has been the development of standard package sizes for roll paper products.

As you are aware, the Office of Weights and Measures of the National Bureau of Standards has identified a number of products which it considers suspect under the "undue" proliferation provisions of the Fair Packaging and Labeling Act. In our industry, paper towels was one of these products.

As soon as the Tissue Division was notified, I appointed an ad hoc committee to consider the question of package proliferation as it relates to towels.

We included marketing people in this group, as well as members of the packaging and labeling committee, because any decisions affecting how our members package and sell their products are decisions made at a top marketing level.

After several fruitful discussions with Mr. Malcolm Jensen and his associates in the Bureau of Standards, the ad hoc committee came up with the recommendation that all paper roll towel producers will list the contents on their retail packages in square feet for ease of consumer comparison, and will also reduce the actual number of sizes offered.

Both the Bureau of Standards and the FTC have concurred with our plan, and it is our member companies' intention to put it into effect before December 31, 1968.

And to further demonstrate our desire to cooperate, we will keep this committee active for the purpose of reviewing the other major tissue

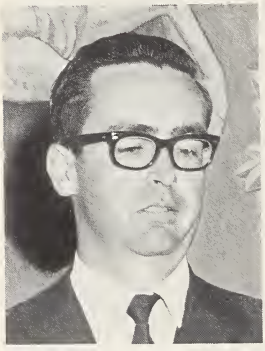
products categories, to be sure that they comply with the new legislation.

Throughout our efforts in the past year to bring sanitary paper products labeling practices into line with current Federal regulations, the tissue industry has benefited immeasurably from our many years of experience in voluntary standards making with the committees of the National Conference on Weights and Measures.

We look forward to working jointly with you in the future on solutions to any packaging and labeling problem which will benefit the consumer, and to a continuation of the outstanding and constructive relationship we have had with all weights and measures people and with this Conference in the past.

THE EMPHASIS IS ON "WITH"

by Frank McLaughlin, *Director, Producer/Marketing Relations, President's Committee on Consumer Interests*



My appearance here today represents a modest "batting streak." (In Washington we regard a hot batting streak as any time one of our Senators puts two consecutive hits together out at D.C. Stadium.)

For the second consecutive year your Executive Secretary has accorded me the privilege of being able to speak to the Conference; a privilege for which I and my boss, Betty Furness, are sincerely appreciative. On reflecting over Mac Jensen's second invitation I have not been able to decide whether Mac liked what I said last year, or thought that I needed another opportunity to get the message across. It makes no difference if the message is timely and I think that it is.

The marked increase in Congressional absorption with consumer legislation in the past few years has stimulated considerable discussion and comment on how governments, industry, and consumers interact in the process of recognizing and solving consumer problems. Many of the comments are highly critical. I have no doubt that critical comments can be heard during the deliberations of this Conference. Nor do I doubt that they will be heard for months and years to come, for the problem raised is not susceptible to a quick and easy solution.

The man in the street complains if Federal programs do not reflect his views and needs. The representative of industry attacks what he regards as "interference with the free enterprise system." The home town lawyer and doctor warn in their professional journals against "the dangers of growing regulatory power" being exercised by administrative agencies of government. Some State officials resentfully declare

that Federal officials are unwilling to give the States a share in the decision-making required by old problems and new programs. Giving unity to this chorus is the theme of impatience with one of the forms, mechanisms, or institutions of our Democracy; an impatience that is so great as to inhibit civil dialogue, preclude meaningful collaboration, and inevitably engender animosity. Recently, Eric Sevareid of CBS News described the attitude of some vocal minorities as an impatience with representative democracy and a cry for more participatory democracy. If this is an important trend, an especially significant thread in the fabric of our society, it seems worthwhile to trace a few aspects of the interaction between Federal and State Governments, between Government and industry, and between Government and ordinary citizen-consumer. Because of the work of this Conference, and because of the restrictions imposed by a paper of relatively short length, I would like to deal with some specifics of Federal-State relations and talk in general terms of current interaction between Government and industry and between Government and citizen in meeting consumer needs.

This morning we have heard much about the benefits to all concerned to be gained from smooth articulation between Government and industry in working for the citizen-consumer. The Congress of the United States has advocated progress through cooperative efforts of Government, industry, and citizens in numerous pieces of recent legislation. Congress has directed Federal officials to work "with" State authorities in implementing Federal laws. Congress has created special Commissions where representatives of consumers, industry, and Government are to work "with" each other in translating words into consumer protection programs. The President too has created Commissions representative of various segments of our socity, to study the problems of this time and this place and to work towards their solution. He has also directed agencies of the Government to work with industry in bettering the conditions of the citizen-consumer. Consumers are currently being told of the tremendous political and economic benefits to be gained by uniting their voices and efforts and by working "with" government and industry. Yet, while Government, industry, and consumer spokesmen recognize the need for working together, while there is so much emphasis on "with," there are discordant voices. There is impatience with the functioning or malfunctioning of the systems of interaction among Governments, consumers, and industry. What are some of the obstacles to better interaction?

In several sections of the Fair Packaging and Labeling Act (FPLA) Congress directed Federal agencies to work with the States in implementing the law. Mr. Cawley has told us how the same law has required close coordination of industry's efforts with the Federal authorities.

I would like to review for you what I have seen of State-Federal interaction under this law to see whether there are any lessons to be learned from this interaction.

One year ago I stood before you in the auditorium of the National Bureau of Standards at Gaithersburg, Maryland, as a representative of Commissioner Goddard and the Food and Drug Administration. I extended Commissioner Goddard's invitation to your Committee on Laws and Regulations to meet with him and discuss the content of the initial regulations under FPLA. Up to that point in time the chances of a cooperative Federal-State approach to implementation of the law did not appear to be good.

The law was, and is, primarily a labeling Act rather than a packaging law, and its pre-emption provision cut deeply into an area of regulation (weights and measures labeling) that had traditionally been largely the concern and province of State police power. These factors alone were bound to produce irritation at the State level, and some less enlightened industry representatives contributed to the irritation by telling State officials that the Congress and the Federal agencies had turned their backs on the States; an ironic statement when one reflects that industry has most to gain from uniformity of regulation imposed by the new law. Then too, the initial proposed regulations under FPLA had elicited almost no response from the States. Finally, it is in the nature of humans to follow the path of least resistance, and to seek out the comments and opinions of others, is frankly, to court complications. It was therefore with some uncertainty that I approached Dr. Goddard with the proposal that he meet with your Laws and Regulations Committee.

The uncertainty was wasted. Your Committee met with the Commissioner of FDA. The meeting in fact took place on the day of the invitation. The members by themselves and through their Chairman, Bill Kerlin of California, presented their views on the initial regulations to be promulgated. The Commissioner's staff recommended that he accept the views of your Committee. The initial FDA regulations under FPLA reflect to a great extent the fact that the Commissioner did follow the advice and recommendations of your Committee. The Commissioner of FDA also sought out the views of other State officials before issuing the final regulations implementing section 4 of FPLA. In short, an effort was made to put meaning into, and to give effect to, the Congressional direction to work "with" the States.

A similar pattern was followed by the Federal Trade Commission, the other Federal agency sharing the regulatory authority with FDA under FPLA. I do not rely on hearsay with regard to the FTC action under FPLA. In midsummer of last year, I transferred to the FTC and was given the responsibility of drafting regulations under FPLA.

Again the record revealed little apparent State interest in the initial proposed regulations issued by the Federal agency, but in late August of 1967, the Chairman of the Federal Trade Commission, Paul Rand Dixon, received a letter from Bill Kerlin and other members of your L & R Committee offering the Commission the advice and assistance of the States in the promulgation and enforcement of the regulations under FPLA. The Commission does not have a long history of cooperative relations with State regulatory agencies, but the Chairman was so impressed with the sincerity and constructive attitude of the members of your Committee that he immediately began a dialogue with the States concerning the enforcement of packaging and labeling laws in general, and particularly with regard to implementing the FPLA. Out of this dialogue there developed the appointment of an Ad Hoc Committee of State officials to work directly with the Commissioners of FTC in matters pertaining to the implementation of FPLA. The regional meetings with State officials now being sponsored and carried out by the FDA and the FTC also grew out of this dialogue. By an odd coincidence, Bill Kerlin and Larry Barker of your L & R Committee turned up as members of the Ad Hoc Committee working with the Commission. Sam Christie of New Jersey and Mr. Moore of North Carolina were other members of the Conference working on the Committee. In mid-March of this year, the Committee of State officials met with the five Commissioners of the FTC just before the Commission issued its initial final regulations under section 4 of FPLA. Here again State officials presented their views and recommendations persuasively and the Commission followed every recommendation of the Committee. In case you are not familiar with the stinging minority opinions frequently coming from the Commissioners of the FTC, let me just say that it represented no small feat for the Committee of State officials to produce complete agreement among the Commissioners. One Commissioner told the State officials that the meeting had been the most productive session held by the Commission within his memory. Having taken part in that meeting I can tell you that the degree of uniformity between the regulations of the FDA and those of the FTC under section 4 of FPLA was due to a considerable extent to the efforts of State officials who made the effort to register their views in person, by mail, or by both means.

Now I am not about to suggest that the initial cooperation and articulation between State and Federal authorities in implementing FPLA is the general rule. It is not. I think it has been an exception to the general rule. The general rule is that Federal agencies publish proposed rules, regulations, and policies implementing programs that are of interest to State agencies, and the affected State agency is frequently unaware of the Federal Register announcement, or hears about the announcement too late to take any action on it. The general

rule is that the view or views of the States are not adequately carried to the Federal agencies charged with the job of carrying out the programs mandated by Congressional action. The general rule is that communication and cooperation between State administrators and Federal field officials are not what they should be, and almost nonexistent between State administrators and Federal administrators in Washington. The general rule is that many State officials feel slighted by the actions of Federal officials. I am aware that, even in the case of implementation of FPLA, there have been and there will be legitimate complaints by State officials that their opinions are not being solicited.

With due respect for the efforts of Congress, I submit that it takes more than words on a piece of legislation to get all parties affected by a legislative program to work together, to put the emphasis on "with." What does it take?

It certainly requires a showing of interest on the part of the State agencies. I dare say that in the case of FPLA neither FDA nor FTC were aware of the desire of the States to be heard on the matter of implementing the Act until the States came forward and exhibited an interest. (For completeness of the record, I must add that a fellow named Mac Jensen did a little nudging of some State officials at the right moment.) The number of comments filed with the two agencies in response to the initial proposed regulations was certainly no indicator of State interest. In my judgment the scarcity of comments is rather an indication of the shortcomings of the communications system which should provide quick and timely notice of proposed actions by Federal agencies to all those intimately affected by the program. If there is to be true cooperative effort in putting legislative programs into effect, something must be done to improve this communications system.

It is apparent that State administrators, faced with their busy schedules, do not have the time to scan, research, and interpret each daily Federal Register issue for proposed Federal actions that may affect their Bureaus, Departments, and programs. Experience would also indicate that it is equally unrealistic to expect Federal administrators, charged with the responsibility for implementing programs, to make a practice of holding important issues until State opinion is canvassed. I am not suggesting the solution to this problem. I am suggesting that both sides should devote more time to the problem's solution. The problem is not so great as to defy efforts towards its solution.

Placing the emphasis on "with" also requires recognition of the fact that the delegation of program responsibility by Congress to a Federal agency presupposes that interested and affected parties will avail themselves of the opportunity to help shape the program through comments on proposals or objections to actions taken. In addition to the responsibility of helping to assist in the shaping of a "National Rule,"

States must be concerned with the possible effect of Federal proposals on existing State programs. For the State official to ignore the effects of Federal legislation on State programs and practices is to avoid his responsibility on two counts.

Rather than adopting a "you passed it now you implement" attitude, State officials should routinely deluge Federal administrators with their views on Federal proposals affecting the States. The experience under FPLA suggests that Federal agencies will listen to and be guided by State opinion and views. Not incidentally, in my view we end up with better programs, policies, and regulations when the States do participate. I would like to see more of it. It is of course easier to sit back and criticize the system rather than work towards its improvement.

In my experience industry does not suffer from a poor communications system or from lack of exposure when it comes to working with the Government. Almost literally while the ink on a Federal Register announcement is still drying, the affected industry through its technical experts, house counsels, trade associations, Washington offices, trade papers and magazines, Washington counsels, and through other organs of information has already taken an accurate reading on the new Government proposal and has adopted a stance in relation thereto. Batteries of industry technical experts and lawyers then descend upon the agency originating the proposal for "further clarification" and for the purpose of gauging the firmness of the Government's position on the proposal. When the sessions are concluded there is little doubt in the minds of the Federal officials as to the industry position. However, this excellent communications system is for the most part used merely as an "early warning system," like a telephone marked "Use only in cases of emergency." Often the above-enumerated organs of information do double duty, also serving as insulation between the industry policy maker and the Government administrator, preventing informal discussions of current problems, and thereby creating another issue for Federal Register publication. Whether this insulation is actually desired by industry policy makers or is based on an erroneous assumption that it is desired, it frequently has the effect of making industry appear ultra-conservative, even negativistic. Until industry is ready to adopt a more candid and less defensive attitude towards discussing existing problems with Government before they reach a stage requiring regulation, I am afraid that Government-industry collaboration will continue to consist primarily of arguing over the details of regulations. In short, there will be frequent usage of, but little meaning in, the term "with."

Unlike the State official, consumers do not have the problem of trying to decipher the Federal Register for actions of the Federal Gov-

ernment of interest to and affecting consumers. For, despite the general practice of Congress to delegate the job of "filling-in" the legislative outlines to Federal agencies through Federal Register announcements, most consumers have probably never heard of the Federal Register or the Code of Federal Regulations. Standards are created, rates are set, policies made and unmade, and the average consumer is blissfully unaware of the burning issues that make the practice of administrative law a lucrative field in this town. It is ironic indeed that Government programs, having their genesis in consumer complaints and problems, should be proposed, shaped, and implemented in the absence of consumer awareness and participation. To my mind, this irony continues to be one of the major obstacles preventing consumers from participating "with" Government in the act of governing.

Again, I would like to thank you for allowing me to spend some time with you this morning and hopefully shed a bit of light on some current problems.

WEDNESDAY AFTERNOON—JUNE 19, 1968

CONFERENCE LUNCHEON

Guest Speaker: Honorable J. T. Myers, *Congressman, State of Indiana*

THE METRIC SYSTEM AND YOU

Writers have had a great deal of fun with the metric system—"I Love You a Hectoliter and a Decaliter . . .," "I wouldn't touch it with a 3.048 meter pole . . ."—but the possibility of conversion to the metric system is a deeply serious matter to all of us who are concerned with the art and science of measurement.

The fact that you have reserved this time during your 53d National Conference on Weights and Measures to think about "The Metric System and You" underscores your concern about possible conversion. You weights and measures officials of Federal, States, and local governments, and you representatives of equipment manufacturers, industry, business, and consumers, represent an impressive cross-section of our national life that would be touched by metric conversion. As a member of Congress, I realize that conversion to the metric system is an important, often controversial, matter among the sectors you represent, and I welcome the opportunity to talk to you on this timely topic today.

The English inch-pound-gallon system, a measuring system built upon the length of barley grains and royal thumbs, is no longer English. On May 24, 1965, the British Board of Trade declared to the House of Commons that the United Kingdom would adopt the metric system section by section until it becomes the primary system of weights and measures for that country as a whole. The Board set 1975 as the target date for its accomplishment. Britain's Canadian cousins followed that move by calling for a full study of the effects of a similar adoption. In April 1967, the Australian Senate created a select committee to investigate the desirability of adopting the metric system.

With 90 percent of the world's population now using the metric system, there are those who say that the United States shares the

position of a little character in a cartoon a few years ago. He was shown dashing excitedly off scene, crying, "I must hurry, for there go my people, and I am their leader!" Our position may not be this extreme. We know that the United States is a leader in science and technology, as a recent space meeting at Athens demonstrated. Virtually the entire meeting was conducted in English, and while translation into Russian and French was available, English was clearly the language of science and technology. When Wernher von Braun lectured there on the Apollo moon project, he studiously converted all English units of quantity—360 feet high, 7.5 million pounds of thrust, 200,000 gallons, 17,500 miles per hour—into their metric equivalents. Necessary, for France made the meter compulsory in 1840; Russia went metric in 1927. Indeed, as we survey the list of more recent converts—Israel, Jordan, Sudan, Greece, Nationalist China, India, and Japan—we recall the song about the World War I mothers watching a parade of doughboys in which one mother says, "Look! Everyone's out of step but my Jim!"

Our Jim may be out of step despite the fact that in 1866 the Congress did legalize the metric system in the United States as an optional alternative to a perplexing potpourri of rods, perches, poles, gills, miners' inches, Gunter's chains, milk gallons, wine gallons, dry gallons, minims, skeins, cords, pipes, tuns, hogsheads, bushels, pecks, long tons, short tons, and California lugs that was inevitable in our polyglot culture. We have some 80 units of weight and measure, as compared with three basic units—the gram, the liter, and the meter—of the metric system.

Actually, efforts to standardize and simplify the cumbersome customary system began with the birth of the Nation. In their grant of powers to the Continental Congress, the Articles of Confederation specified the fixing of standards of weights and measures throughout the United States. Later, when the Constitution became effective in 1789, Section 8, Article 1 reiterated that "the Congress shall have the powers to fix the standard of weights and measures." In his first message to the Congress, George Washington said: "Uniformity in the currency, weights and measures of the United States is an object of great importance, and will, I am persuaded, be duly attended to." But in 1961 Senator Maurine Neuberger spoke up on the Senate floor to say that though there was no mention of it on the Senate Calendar, there was some unfinished business before the Congress; the proposal urged upon the Continental Congress by the Articles of Confederation and upon succeeding Congresses by the Constitution to fix the standard of weights and measures throughout the United States had yet to be acted upon when she spoke in 1961.

President Washington's remarks did result in a report and what a familiar sound that has. This report by Thomas Jefferson, then

Secretary of State, was influenced to some extent by material published in contemporary British and French studies of establishing uniform weights and measures. The Sage of Monticello proposed two alternate plans. One suggested retaining the basic English system then current, but making the measures invariant. The second plan suggested adoption of the metric system initially conceived by a French abbot and then being strongly advocated in France as the now universal system for the world. "There should be reduced," Jefferson wrote, "every branch to the same decimal ratio already established in coins and thus bringing the calculation of the principal affairs of life within the arithmetic of every man who can multiply and divide plain numbers." Neither proposal was acted upon and a Senate select committee, appointed in 1791, recommended that no changes be made in the system of weights and measures. There was not, however, a national uniform system of weights and measurements then in use. A pound in New York was not the same as a pound in Virginia. The problems affecting trade are obvious.

More committees in each House made studies; more bills came before the Senate—but no legislation was passed. Even John Quincy Adams' scholarly report in 1821—some 250 pages discussing the theory of weights and measures and its importance in the conduct of everyday affairs—spurred no action.

It is interesting to note that as early as 1821, in rejecting proposals to change to the metric system, Congress concluded that it was impractical to make the change because of the cost and complexity. Consider the relatively simple and primitive economy then. Compared to today's complex economy, it would have been an easy job.

Finally, in 1836, the national uncertainty regarding standards of weights and measures ended with the Joint Resolution on June 14 of that year. This resolution provided for a complete set of all weights and measures adopted as standards to be delivered to the governor of each State in the Union. On July 28, 1866, a law was passed which made legal throughout the United States the employment of weights and measures of the metric system.

Events and actions during the next twenty years were to have a profound and lasting effect upon the weights and measures situation in the United States. By a combination of adherence to a treaty and administrative action within the Treasury Department, the United States succeeded in correlating its system of weights and measures with those of other nations, and resolved the issue of its own fundamental standards. This period saw the receipt of official meters and kilograms from the International Bureau, and culminated with the Treasury Department's approval of the Mendenhall Order. At the recommendation of T. C. Mendenhall, Superintendent of the Office of Weights and Measures, the Treasury Department stated that the

yard and the pound within the United States would be based on the meter and the kilogram. And at the International Conference of Weights and Measures in Paris in 1889, the U.S. representative accepted Meter No. 27 and Kilogram No. 20. These were carefully transported to the United States, accepted at a White House ceremony, and then deposited in a vault at the National Bureau of Standards. There, though hidden from the public view, they affected public affairs by providing fundamental standards for trade and commerce, science, and engineering.

During the years that followed, use of the Metric System in the United States remained confined to well defined areas. Today it is almost universally used in the scientific and medical professions. Almost all of the firms of the pharmaceutical industry have changed to the use of the Metric System. Other industries that are at least partially on the Metric System are the chemical industry, electric power industry, photography, optometry, electronics, and many others.

Of the many bills introduced in the House of Representatives and the Senate in recent years calling for adoption of the metric system, or for a study by the Department of Commerce of such an adoption, only one has reached the floor of either Chamber. This was S.774, introduced in 1965 during the 89th Congress. It called for a study of the feasibility of adoption of the metric system. At the suggestion of the Department of Commerce, the bill was revised to provide that the study of the practicability of increasing the use of the metric system in this country. S.774, as amended, was reported favorably to the Senate by the Committee on Commerce, and passed the Senate. It was referred to the House Committee on Science and Astronautics and reported favorably by that Committee to the House. But parliamentary procedure in the House requires a resolution by the Rules Committee before it can be considered by the entire House of Representatives, and S.774 died in the House Rules Committee for lack of such a resolution in the closing days of the session.

In the present 90th Congress, the House Science and Astronautics Committee acted early in 1967 to provide time for action on a metric bill by both Houses. In House Report No. 33, dated March 6, 1967, the Committee approved H.R. 3136,* introduced by Committee Chairman George P. Miller of California. Representative Miller appeared before the House Rules Committee and requested that the bill be made a "privileged matter." This time the powerful Rules Committee agreed that the proposed legislation had merit and passed House Resolution 1148, authorizing consideration of H.R. 3136.

Editor's note: This bill passed the House June 24, 1968; the Senate July 30, 1968 and was signed by President Johnson Aug. 9, 1968.

This bill would authorize the Secretary of Commerce to conduct a three-year investigation, research, and survey to determine the impact of the increasing worldwide use of metric weights and measures in the United States, and to appraise the desirability and practicability of increasing the use of metric weights and measures in the United States. The investigation would likewise evaluate the cost and benefits of alternative action which may be feasible.

In more detail, to accomplish the purposes of the Miller bill, the Secretary of Commerce would conduct studies in educational, engineering, manufacturing, commercial, scientific, and public areas to determine the relative advantages and disadvantages of metric use. Also, the degree of standardization of weights and measures in each of these areas would be studied. The study would likewise appraise economic advantages of the use of the metric system in international trade and commerce, and investigate the difficulties that might be encountered in such increased use of the metric system. And in accomplishing all this, the Miller bill directs the Secretary to consult with representatives of industry, science, engineering, labor, and their associations in the program.

As members of House Science and Astronautics Committee see it, there are two significant points incorporated in this bill, points which developed during earlier hearings.

First, since considerations of conversion may vary considerably depending on the sector of society using weights and measures, to be most effective the study must analyze each use and aspect. As proposed, the study would be an across-the-board analysis of all areas of the systems of measurement, recognizing, as the Committee report put it, "the hard problems as well as the easy ones and determining and studying the relative advantages and disadvantages in each area."

Second, the bill recognizes the necessity of having major segments of the American economy participate in all phases of the study—in the planning, in the study itself, and in its evaluation. The Committee feels that participation by segments of our economy which would be directly affected, such as those you represent, will assure that all aspects of the matters under study are fully developed and will encourage broad acceptance of the study.

While it has approved H.R. 3136, the Committee has not *prejudged* the conclusions of the proposed study. Its members do contend that a study is a prime requirement before recommendations for action on the metric system can be accepted.

What are some alternatives? The recommendations might call for compulsory adoption of the metric system. They might urge voluntary conversion by extending metric usage to industries other than those currently using the gram, liter, and meter. Or they might point to a

regulated partial conversion in various industrial areas over an extended period of time.

Similar metric study legislation has been proposed in the Senate. The Senate Commerce Committee held hearings last November on two bills, S. 441 and S. 2356. S. 441 is identical to the House bill, and S. 2356 differs primarily in that it would include in the study "any existing or proposed system of weights and measures," and "the extent to which the United States should retain and promote international use of the system of weights and measures, and various standards used in connection therewith, currently in use in this country."

Several witnesses before the Commerce Committee deemed S. 441, twin of the House bill, a more direct attack on the basic problem—that of proposed full use of the metric system in the United States. They noted further that the study under S. 441 of "alternative courses of action" by a competent group would include consideration of the additional ideas embodied in S. 2356. Department of Commerce spokesmen were among those expressing a "distinct preference for the language of S. 441." So far, there has been no further action on either of the Senate bills.

The estimated cost of the study proposed by these bills is $2.5 million. The identical House and Senate bills authorize an appropriation of not more than $500,000 for the first year of the program. In hearings in 1966, then Assistant Secretary of Commerce J. Herbert Hollomon commented on this price tag: "With the various nations of the world and much of our economy concerned with the measurement system we use in the design of products and manufacturing, with the increasing growth of the European market, and with the increasing number of countries that either are contemplating or have converted to the metric system, I think it extremely important that this study, which is really quite modest from the standpoint of its cost, should get underway as promptly as possible."

As a matter of fact, I might observe that this estimated study cost of $2.5 million would demand slightly more than one cent per American taxpayer. Every time a pharmacist changes from ounces to grams to make out a prescription, he spends far more than one cent in terms of salary time. Many feel that the loss to the economy in not going ahead with the change is much greater than the cost of the study.

Discussions on the advantages and disadvantages of actual conversion have filled many columns in the daily press, scientific journals, and trade publications, and have occupied many symposia hours at scientific and technical meetings.

Why then have we had recent interest in the proposition for a change, after nearly three decades of little activity? Why has renewed attention been focused on a system whose bases lie in a standards vault

at the National Bureau of Standards? The reasons are far better known to you than to me. But let me recount them as they appear to one Member of Congress.

The industry of this scientific age demands greater and greater precision of measurement. When the magazine *Industrial Research* recently polled nearly 3,800 scientists, engineers, and technical managers, it found that 93 percent of them, more than nine-tenths, favored total or partial conversion to metric units in the United States. Important segments of the scientific community recognize the need for a uniform system.

Developing nations need commonly accepted standards for their internal and external commerce. In this connection, I was interested in a report by a member of our Indiana delegation, Representative J. Edward Roush, who attended the Tri-Annual Meeting of the International Organization for Standardization held in Moscow last summer. In his report on the international conclave, my Hoosier State colleague noted that U.S. participation in ISO work in previous years has not been extensive. He emphasized that the attendance of National Bureau of Standards Director A. V. Astin and USASI head Donald Peyton showed national willingness to promote international standards, but said that the United States is weak in its representation on ISO's technical committees. Mr. Roush cited ISO's concerted efforts to induce the participation of underdeveloped countries in its activities, and urged that the United States actively participate in international standard setting. This is not do-gooder or altruistic. We must participate in international standards setting, to protect and assure our access to growing world markets.

Which brings me to the third, and biggest, single factor behind the renewed interest in a move toward the metric system—the defense of the U.S. foreign trade position. Columnist Sylvia Porter has estimated that we lose $10 billion a year in trade with metric countries. A recent statement on the Senate floor went her some $15 billion better, estimating an annual loss of $25 billion. The Department of Commerce has contested both estimates, saying that the combined genius at Commerce has been unable to determine our foreign trade loss. But Commerce's statistics on international trade show that U.S. exports to 16 metric countries did decline 2 percent between 1957 and 1963. If we are to sustain our prosperity and find a permanent solution to the deficit in our balance of payments, metric proponents say we cannot afford to remain out of cadence with a metric world. If we are to take full advantage of the favorable trade climate created by the Kennedy round discussions last year, we must get in step. Many U.S. products made to English measurements simply cannot be used in metric countries, they say, even though the U.S. products may

be superior. And there are delays, costly ones, when American designs licensed to firms in metric countries have to be converted.

This may explain the recently declared support for a change from a surprising source, the Ford Motor Company. Ford stated that "their studies of future, potential world markets have developed the clear conclusion that if they are going to be a worldwide company, they should not hang on to a measuring system that they have gotten by default."

The pro-metric arguments of Ford Engineers and other international trade enthusiasts are countered by the opposition with two arguments. One is that *only* about 4 percent of this country's GNP is exported, and the other is that the Nation's competitive worries are mostly about labor costs. Metric opponents scoff at the notion that our highways are dotted with Volkswagons simply because they are built with components produced to metric standards. On the other hand, the Japanese auto industry, which is expanding very rapidly into foreign trade, is a metric industry.

The strongest argument against metric adoption stems, of course, from the incalculable cost of conversion. Good figures are not available but this would be an important goal of any study. According to General Motors Corporation, conversion to the metric system would be so costly that it is unthinkable for the present. They estimate that the change would cost U.S. industry anywhere from $50 billion to $100 billion. A Ford Motor Company spokeman has told a group of standards officials that the cost of conversion could conceivably be one-sixth to one-fifth of his company's capital worth. General Electric estimates $200 million for its changeover, including $80 million for the modification or replacement of equipment, $44 million for redocumentation, $23 million for modification or replacement of testing and measuring equipment, $21 million for training personnel, and $19 million for the operation of dual production facilities.

While much of the cost of conversion for a heavy manufacturer is in retooling, even more subtle costs can add up. For example, a director of design for a machine tool builder has pointed out the straight conversion of engineering drawings from inch to metric measurements. This cost would equal about one-third the cost of making the original drawings.

There are some two million hand micrometers in use in the United States. At $15 apiece. replacing them adds up to about $30 million. Who would shoulder responsibility for these immense costs? The individual industries? The United States Government?

It is argued, of course, that in the process of normal replacement of old and wornout parts and of weights and measures themselves, metric parts and weights could be introduced. In her conversion, India found that the normal lifespan of a commercial weight or measure is about

five years. Every year about 20 percent of the weights and measures in circulation are, therefore, replaced. In a period of three years 60 percent would be replaced in the normal course.

Individual industries are already converting, it is argued, as trade and circumstances dictate. Whole industries—drugs and pharmaceuticals, plastics, chemicals, electric power, ball bearings, spark plugs as well as practitioners in photography and oceanology—have adopted the metric system partially or completely. Why rush the process and risk throwing the Nation's economy out of whack?

And so the debate continues. Common industrial standards in inch sizes have been established by all the English-speaking countries. For example, the American Unified Thread is used for almost all engineering purposes except in heavy industry. No similar standards have been established among the metric countries. The switch would prematurely outdate appliances and equipment through a growing scarcity of replacement parts; textbooks would have to be changed, mileage markers along the highways, milk bottles, gasoline pumps, and workmen's wrenches.

Having discussed the reasons as I see them behind the renewed and recent interest in metric conversion, and touching now on objections to this conversion, may I note two final arguments against metric usage.

Opponents of conversion contend that American manufacturers would have more to lose than to gain if we switched because they would be faced with foreign competition from manufacturers abroad who have lower labor costs. Adoption of the metric system would enable foreign industry to increase its competition right here in our home markets. Without the protection of feet and pounds, some American firms fear they would find it hard to compete with these foreign countries in the domestic market without lowering our standard of living. Finally, metric opponents argue that achieving greater precision in weights and measures is not necessarily dependent on the metric units.

Now to the benefits. One benefit is the educational by-product cited by the Chicago Teachers' College math department chairman. He says that as much as two full years of elementary school arithmetic would be dropped if the inch-pound system were replaced. Others claim the metric system can be learned by a schoolchild in one hour. If kilograms, liters, and meters replace pounds and feet, the time it takes to learn math could be cut by 25 percent, they estimate. The American Geophysical Union has urged that "such monstrosities as proper fractions, denominators, greatest common divisors, and mixed numbers be laid to rest with the celluloid collar and the oxcart."

Another benefit would be the removal of the communications barrier between scientists and engineers, to overcome the confusion of Babel, both nationally and internationally. Big savings would be realized in

the ability to purchase parts and equipment at lower costs because they would be made for both U.S. and foreign markets. The greater number of units per setup, the lower the cost per machine.

Of course metric conversion would present problems. Dr. Astin of the National Bureau of Standards summarized these during the Senate hearings last year. He divided the problems into two broad classes—those of software and those of hardware.

Software problems are essentially language problems whose solutions, he said, involve paperwork and training of people, such as retabulation of data and learning to think and work in terms of a different measurement system. There would be, you see, a category of products not changed significantly by conversion. The largest quantity would be bulk materials including agricultural products, construction materials such as cement, sand, gravel, plaster, chemicals, and fertilizers; and fuels including oil, coal, and gas. Conversion to metric units for these products would present software headaches; accountants would have to change records of inventories and business transactions. Prepackaged commodities, such as loaves of bread or bottles of milk that are required by law to be sold in round units such as one pound or one quart, would have to be changed. Many other prepackaged quantities, however, that are now sold in a wide range of quantities and sizes that are not expressed in round numbers would simply need to be remarked in metric units.

Then there are the hardware problems Dr. Astin cited—those whole solutions require changes in existing physical entities, such as machines, instruments, tools, jigs, fixtures, stock sizes, standard modules and the like. Here much more would be involved than a mere change of nomenclature. The most acute problem would be with machine tools—especially those such as lathes and thread grinders, and other precisely dimensioned items. There would be special problems for numerically controlled machine tools.

Consider how the metric system would change our lives: Your 132 pound wife would thrill to her new kilogram weight—60. The morning sports page would reveal that Notre Dame held Army on the 3-meter line; Willie Mays unloaded a 155-meter home run. Hot rodders could boast that they reached 155 kilometers per hour in 55 seconds. The Memorial Day classic in my native State would be the Indiana 800! Shopping for clothes would be a new experience. There would be no change in glove and stocking sizes, but a size 14 dress might now be called a size 40. And a typical Miss America would boast 91–58–91 vital statistics.

At the Government level, laws, statutes, and codes would have to take the new system into account. Federal statutes setting standards and dimensions would have to be reworked.

State laws relating to things like brick sizes, the length of thread on spools, and the size of butter cartons would have to be altered.

Local building, electrical, and plumbing codes would need updating. Engineering specifications for highways and bridges would have to be changed. Water and gas meters would have to be rescaled.

The Post Office, which figures postage rates on pounds and ounces, would have to be changed. Government crop controls and price supports would have to be rewritten. Farmers would find their acreage allotments expressed in hectares.

Fake bargains might be easier to spot, as price comparisons become easier to make.

In view of these changes and the problems they would entail, a practical consideration for any Congressman voting on a metric bill, either to study a change or make one, must be, quite frankly, the reaction of his constituents. As Abraham Lincoln said: "Public opinion is everything. Without it nothing can succeed; with it nothing can fail." Probably the overwhelming majority of the people, who have measured their lives in pounds and feet and acres, would much prefer to continue speaking the language they inherited. Custom and tradition are formidable barriers. We know that a study such as that suggested by H.R. 3136 and S. 441 would help our people more realistically view the possibility of conversion.

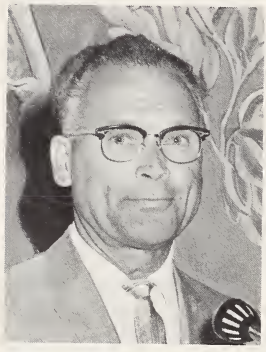
It may be that the study's findings—if there is one—will eventually lead to a nationwide conversion to the metric system. There may come the day that a child will no longer look up from his homework and demand to know how many pecks in a bushel. That would be an antiquated fact of a bygone day, when his country tried to lead the world and still cling to a measuring system built upon the length of barley grains and royal thumbs.

MORNING SESSION—THURSDAY, JUNE 20, 1968

(N. Berryman, *Vice Chairman*, Presiding)

MEETING THE CHALLENGE

by R. C. Primley, *Theisen-Clemens, St. Joseph, Michigan*



In June 1965, at the 50th National Conference on Weights and Measure, one minor event and one major event happened.

The minor event was a major one in my life. I had the rare privilege of attending my first National Conference. This occasion will never be forgotten, as it was here that a neophyte in weights and measures for the first time met the professionals.

The major event was that the petroleum industry, one of the largest industries in the United States, was challenged by the National Conference of Weights and Measures to show just cause why meter tolerances should not be lowered.

It seems as though for some time, the subject had been discussed, but nothing in a positive way had been done about it. Finally, the hour of decision had arrived.

I am happy to say that the petroleum industry picked up the challenge and as I look back on the event, it appears that this was exactly what the weights and measures officials expected. It could have been their method of motivation, as we have learned there are some extremely keen minds directing the National Conference's efforts.

It is from this challenge, and the events of the past three years, that we report to you today.

Through the American Petroleum Institute's Marketing Division, Operation and Engineering Committee, some interesting things have happened.

First, after many meetings reviewing the history of our approach to the subject of tolerances and our attitudes and practices, we found that we, in some cases, had been very wrong. These attitudes and practices were discussed with the entire petroleum industry, and many changes were made, both in operating procedures, and in attitude.

Second, it was found that there had been a "breakdown" in commu-

nication between our own industry, associated industries, the National Conference, and the National Bureau of Standard's Office of Weights and Measure.

The most important thing in life—understanding—was lost.

The Subcommittee on Weights and Measures of the Marketing Operation Committee then created a Technical Task Force. This Task Force is made up of technical engineers and operation people coming from many companies within our own industry and from within the meter manufactures group.

It was found, after careful study, that our first and foremost task was to reestablish proper communication with the weights and measures officials of the National Conference. After many meetings, with much dialogue, I humbly believe that there have never been created better lines of understanding and purpose than those which exist today. You have been very cooperative and understanding, and we thank you.

With this understanding established, we have moved ahead. There have been some rough spots , but I know that we now have complete confidence in each other. In fact, I will say to you as I have said to the people of our industry, that there are few men whom I hold in more regard than I do Mac Jensen for his dedication as a public servant, his integrity of purpose, and his ideals regarding life.

So with confidence and integrity we move down the road together.

Under the direction of our Technical Task Force, some of the best minds in the area of measuring petroleum products and building petroleum meters have been brought to bear on the subject of tolerances. From their thinking, some tremendous things have come about.

As most of you know, the petroleum industry has been conducting a series of meter calibration studies from Maine to Minnesota, from north to the deep south and in between.

These studies have brought forth some interesting questions. Please note, I said *questions*, not answers, for we have learned that sometimes it takes a great deal of study to find a beginning point, and that is exactly where we are, at a point of beginning.

We must begin with the *volumetric prover tank.*

This Prover Tank must be constructed and tested to as nearly perfect specifications as can be developed.

1. Design and construction must be evaluated. Proper drainage and clingage factor must be considered. An advanced leveling device must be developed.

2. Various types of metal must be considered.

3. Methods of recording temperature during testing period must be developed.

4. The effect of temperature on metals and the products being used in test must be known.

5. Evaporation loss during testing period must be monitored.

These are only some of the areas that must be carefully researched. Many more will develop as the studies progress.

I am happy to report that other divisions of the petroleum industry are now setting up committees to make in-depth studies of petroleum product meter provers.

I feel sure the present API standards will be revised.

Our Marketing Division will develop a bulletin to be used by field personnel and maintenance men spelling out the proper techniques in proving meters. This bulletin will define the term tolerance and exactly how it is to be applied to the calibration of meters. This bulletin will be developed with the weights and measures officials' help and suggestions.

Our Weights and Measures Subcommittee has asked for a sufficient budget to further the necessary studies.

Our Subcommittee Technical Task Force has outlined to our industry the plans for the immediate future.

So we move, industry and weights and measures officials, shoulder to shoulder, with complete confidence in each other, to build a greater industry, a greater government, and a greater democracy.

For this purpose we were born.

LITTLE OMISSIONS CAN LEAD TO SERIOUS ERRORS

by Arthur Sanders, *Executive Secretary, Scale Manufacturers Association, Inc., Washington, D.C.*

The National Conference on Weights and Measures is dedicated to providing assistance to the States in the matter of reasonable laws and regulations on weights and measures and to uniformity among the States. Scale manufacturers strongly support these objectives and I am convinced the industry is generally helpful to these ends.

Today, with the entry of the Federal Government into the field of weights and measures through the Fair Packaging and Labeling Act of 1966 we have another area of Government control. Since that act expressly supersedes any State or local law less stringent than the Federal law, the Federal law and regulations certainly must be recognized as an important factor and possible complication.

Handbook 44 Specifications Create Standards.

Scale manufacturers have long used the specifications and tolerances of the H–44 scale code as the criteria for designing and producing scales. H–44 has provided a most useful standard for commercial

scales and we have found in general that a scale designed to meet H–44 is acceptable throughout the nation. When provisions are adopted in H–44 they have been very carefully studied and considered in advance, not only by your Specifications and Tolerances Committee, the National Bureau of Standards and the National Conference, but by the scale industry as well. I'm sure the same situation holds true for measuring devices.

I'm not here to review the details of your system of developing and promulgating your model laws and model regulations. You are entirely familiar with the procedures for getting good weights and measures requirements on the books. We find the procedures most acceptable.

Alertness Can Avoid Conflicts.

My purpose today is to focus attention on laws and regulations, Federal, State, and local, which conflict with the National Conference model laws and regulations, and which can destroy the usefulness of well designed scales meeting all the requirements of the present excellent laws and regulations.

With the advent of "consumer legislation" in the past several years, we now find ourselves faced with a race among legislators and high Federal, State, and local officials to enact legislation they feel will protect the interests of consumer-purchasers. More often than not these people are not familiar with weighing and measuring devices used in quantity determination, or with the model laws and regulations of the National Conference, or with the State requirements. This is understandable because weights and measures laws and regulations are very complex to the uninitiated. Usually their purpose in proposing legislation is not to improve weights and measures but to create greater consumer protection. Unless we are all careful, irreparable damage can be done to our sixty-year effort toward nationwide uniform weights and measures requirements and to sophisticated devices produced under present requirements.

The proposals for improved consumer protection and the model laws and regulations are not incompatible. However, the uninitiated legislators and government officials who propose these laws will need some guidance, advice, and assistance from the outset, to avoid overriding conflicts which might cause serious damage to our present excellent system of weights and measures. State and local officials should be alert to the details of proposed consumer legislation, should study them in relation to existing weights and measures requirements, should seek to present appropriate arguments against those proposals which would disrupt your requirements, and should keep the National Bureau of Standards advised from the beginning about proposed consumer legislation. It may well be that diplomatic approaches to the

proponents of such legislation, at an early stage, can get the proposition pointed in the right direction.

I have a copy of the letter from my good friend, Peter Dorn, Secretary of the New Jersey State Chamber of Commerce, which I would like to read.

It is concerned with the problems of politics and what legislators have to put up with. It deals with a controversial subject, but one I think you will find interesting.

> Dear Friend:
>
> I had not intended to discuss this controversial subject at this particular time. However, I want you to know that I do not shun a controversy. On the contrary, I will take a stand on any issue at any time, regardless of how fraught with controversy it may be. You have asked me how I feel about whiskey. Here is how I stand on this question.
>
> If, when you say whiskey you mean the Devil's brew, the poison scourge, the bloody monster that defiles innocence, dethrones reason, destroys the home, creates misery and poverty—yes, literally takes the bread from the mouths of little children, if you mean the evil drink that topples the Christian man and woman from the pinnacles of righteous, gracious living into the bottomless pit of degradation and despair, shame and helplessness, then certainly I am against it with all of my power.
>
> But, if when you say whiskey, you mean the oil of conversation, the philosophic wine, the ale that is consumed when good fellows get together, that puts a song in their hearts and laughter on their lips and the warm glow of contentment in their eyes; if you mean Christmas cheer; if you mean the stimulating drink that puts the spring in the old gentlemen's step on a frosty morning; if you mean that drink, the sale of which pours into our treasuries untold millions of dollars, which are used to provide tender care for our little crippled children, our blind, our deaf, our dumb, our pitiful aged and infirm, to build highways, hospitals, and schools, then certainly I am in favor of it.
>
> This is my stand, and I will not compromise.
>
> (*signed*) Jubilation T. Cornpone
> SENATOR

Examples of Impracticable Proposals.

To cite examples of what could have been unreasonable legislation which might have seriously affected a very important scale, we mention the proposals of the last two years in regard to package labels and the serious effect that could have resulted in limiting the usefulness of an outstanding scale development of the past twelve years—the automatic computing and labeling scale so widely used for prepackaging in modern retail food stores.

Most of you are familiar with these sophisticated scales. They print the name of the commodity, the price-per-pound, the net weight, and the total value on labels of 4 to 5 square inches. They are the heart and brains of the prepackaging operations of volume food stores. There are some 25,000 to 30,000 such scales in use for which the stores paid about $5,000 each, representing original cost of $125 to $150 millions.

Two years ago, at the Denver National Conference, we discovered that the Senate had passed a bill, which, in effect, would have stopped the full use of these scales. That bill would have required that package weights of less than four pounds would have to be labeled in ounces, whereas the scale labels are in pounds and decimal fractions and the price is stated by the pound. This in itself, regardless of other provisions of the bill or the FDA regulations to follow, was sufficient to cancel the full use of the finest automatic weighing, pricing, and labeling scales ever developed.

At the Denver Conference you passed a resolution opposing this particular provision of the Senate bill and Commissioner Lawrence Barker of West Virginia and Malcolm Jensen of NBS testified to this effect before the House Commerce Committee. The Scale Manufacturers Association prepared a written brief and testified orally before the same committee.

Fortunately, the House Committee realized the practical nature of our testimony and revised the bill to exempt random weight package labels from the stringent requirements of ounce labeling. We had the feeling that the members of both the House and Senate Committees and their staffs were most reasonable. We felt they realized from the testimony that the labels produced by automatic computing and labeling scales were quite excellent, actually providing more very readable information for the consumer than would be required by the bill, although in some respects not conforming to the proposed requirements of the original bill. The ultimate result was that the exemption for random weight packages was contained in the Fair Packaging and Labeling Act of 1966, thus permitting the continued use of automatic computing and labeling scales for these packages.

That was not the end. The act authorized the Food and Drug Administration to issue regulations covering details not practical for inclusion in the Act itself. In March 1967, FDA published its proposed regulations and we found that these would rule out the full use of automatic computing and labeling scales for reasons of type size and label size (related to size of principal display panel of package), placement position on label of net quantity statement, etc. Again the Scale Manufacturers Association and its affected members went into action and filed an extensive brief with FDA. Again we had the support of Malcolm Jensen and we successfully arranged for an exemption for the labels of these automatic scales from the "type size, dual declaration, and placement requirements" of the regulations.

More recently, in the last few months we have found that some State weights and measures departments have reached the conclusion that the FDA regulations require that the labels of these automatic scales bear the zip code as well as the name of the packager. FDA officials have pointed out to us that an amended regulation published on Sep-

tember 20, 1967 requires the zip code only on labels "developed or revised after the effective date" of the requirement—namely after July 21, 1967. Malcolm Jensen has issued a clarifying memorandum to State weights and measures directors and we now think zip codes will not be required until new labels are designed and printed.

But this is not the end of the dilemma. Consumer legislation has been proposed in one locality which would prohibit labels on fresh or frozen meats where the label exceeds ten percent of the labeled side of the package. We learned that about half the meat packages have a principal display panel of less than fifty square inches. Thus the labels of the automatic scales would not be usable on about half the meat packages of that jurisdiction. We prepared a brief on this matter and again with the support of Malcolm Jensen we expect to avoid the imposition of this impractical consumer legislation. We understand an amendment has been drafted to exempt labels of five square inches or less. Obviously, the purpose of the proposal was good—to avoid covering large portions of the see-through package. However, the proponents of the measure were not cognizant of the circumstances. They would have required hand printing on some very small labels which, in addition to being unreadable from a practical standpoint, actually confict with the type printing requirements under the Fair Packaging and Labeling Act.

The Lesson To Be Learned.

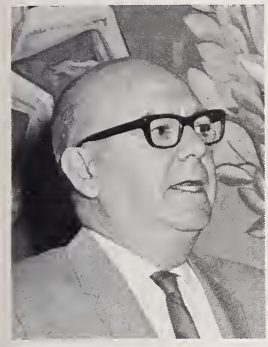
From these examples, we can all learn that many years of experience in developing our excellent model laws and regulations, and designing many modern weighing and measuring devices can be lost to modern commerce and industry, and to our improved weights and measures enforcement if we don't have good, fast intelligence about proposed Federal, State, and local laws and regulations. For the most part the proponents of such consumer legislation are reasonable and practical people who will adjust their propositions to fit the circumstances, if they have proper guidance in the early stages.

This is a challenge to us all to be alert to developments in legislative bodies and among other agencies of Government. And, we must all be prepared to be of guiding assistance in the early stages of the development of legislation. If you need help, I'm sure it can be arranged for through your State weights and measures department and the National Bureau of Standards. If it concerns scales and weighing, we at the Scale Manufacturers Association will try to be of assistance when we can.

The main thing concerning these problems which may face us for a long time ahead is to get on top of the situation early and do everything that can be done to avoid impractical requirements affecting weights and measures.

THE DEVELOPMENT OF A STATE MEASUREMENT CENTER

by Matt Jennings, *Director, Division of Marketing, Tennessee Department of Agriculture*



It was, indeed, a surprise to me to be selected by the program committee of this Conference to present a discussion on the subject, "The Development of a State Measurement Center." Possibly it was because we, in Tennessee, had to begin from scratch and had to scratch for what we now have. Many other States, no doubt, have been more fortunate.

Our weights and measures laboratory was developed under the most adverse circumstances, yet it is now meets the requirements of the new State Standards Program as authorized by Congress. We were not in position to award a contract of $70,000.00 or more to construct a specially designed building. It is my wish to congratulate the States who have been or are in that position. We are, certainly, proud of our weights and measures laboratory and, constructionwise by area and finish, you may have or plan to have facilities much more elaborate than we now have. But, we are confident we can provide the accuracy of information required on the calibration certificate. In laboratory work, it is the end results that count.

It was necessary that we begin with an existing building. It was originally a twenty by thiry-foot farm blacksmith shop with a ten-foot porch. Fortunately, this blacksmith shop was ideally located—separate and apart from other remodeled or newly constructed State office buildings and free from the vibration of heavy traffic. The shop was remodeled by redesigning the interior construction, removing all resemblance of a blacksmith shop.

This was four years prior to the adoption of the new State Standards Program. We purchased a Russell balance and other balances of smaller capacity and were equipped to calibrate certain denominations of mass standards. We also closed in the porch, converting this area into needed office space. We transferred all weights and measures work, including office records and supervision of the program, to this building. The combined space met the minimum requirements under the new State Standards Program but it was our desire to exceed the minimum and have more adequate facilities. Therefore, this building was completely remodeled, enlarged to double in size and redesigned as to floor plan to afford more convenience of operation. In the process of rebuilding, we solicited technical assistance from the Office of

Weights and Measures, National Bureau of Standards, and received most excellent counsel and guidance in the development of our laboratory.

As you may know, we were included among the first ten States to receive new standards and equipment under the new State Standards Program. Our laboratory is now complete with new standards received, new instruments installed, and basic training received in their use.

It is not my desire or intention to infer that our new laboratory or its operation should receive recognition as a model, because we know that we must keep struggling in order to keep pace with some of our colleagues. However, our experiences in developing a State measurement center and in operating it to date may be of some benefit to those States who have developed such facilities and should be of benefit to those States who have yet to qualify.

It is difficult to include, within the time allotted for this presentation, all the phases which led to the establishment of our laboratory. But, I will try to be concise. In presenting this subject, it seems appropriate to consider the phases of "How," "Who," and "Why"—how it was developed; who supported the movement; and why it was established.

Our laboratory, as it stands today, is the result of a long-range plan (figure 1). We have been engaged in weights and measures activity only twenty years. In 1948, it was my recommendation to our Commissioner of Agriculture to activate our Weights and Measures Law of 1913. As Shakespeare once said, "The law hath not been dead, thought it hath slept." New activity was inaugurated, but limited at that time to the testing of large scales. In 1958, after ten years of attending the weights and measures school of experience, it was my recommendation to Commissioner Ellington and Assistant Commissioner Moss that efforts be made to enact the Model Law. I am mentioning the Model Law because it played such an important part in formulating plans for our laboratory and in its later development.

Shortly thereafter, Commissioner Ellington was elected Governor and Assistant Commissioner Moss was appointed Commissioner of Agriculture. After inauguration of the Governor, another conference was held with the Governor and Commissioner during which we discussed the necessity of enacting the Model Law. It was deemed advisable to delay for two years our attempt to enact the Law for two reasons: (1) We needed a general assembly more favorable and receptive to the need for this legislation, and (2) we needed to step up our weights and measures activity and expand our program in order to present and prove the necessity of its enactment. The result—the Model Law was enacted in 1961 without a dissenting vote. Weights and measures activity, as we know it today, really began in Tennessee in 1961, when the Model Law was enacted. It serves as the basis for our activities and program.

FIGURE 1

Hydraulic crane. With an overhead track in the laboratory, the weight can only be carried in the direction of the track. With this crane, the weight can be carried anywhere there is floor space.

The length bench. Support posts built into the wall provide a neater appearance.

Two Mettler balances. Two balances of 100 gram and 1000 gram capacities, on a vibrationless table.

As our program expanded, the need for establishing a laboratory became more apparent. Our activity was becoming more recognized which directed more requests from the public for additional services. This was in line with the expansion of the Department of Agriculture's activities and facilities.

Governor Ellington visualized the potential of a certain 207-acre tract of land, known as "Brentwood Hall Farm," on which the residence was a replica of the Hermitage. This farm was obtained by the State and developed into the Ellington Agricultural Center, the present home of the Department of Agriculture.

Governor Ellington and Commissioner Moss have maintained an intense interest in the weights and measures program, recognized its importance and have watched its progress in Tennessee and elsewhere, step by step. It was their continued interest and financial support that made it possible for our laboratory to be built. We have been most fortunate in Tennessee to have leaders like Governor Ellington and Commissioner Moss to support the weights and measures program.

A good weights and measures program and laboratory go hand in hand. But the development of a laboratory should be preceded by a well-administered program. As you know, it takes money to build a laboratory. In your plans for developing a laboratory or measurement center, may I offer this suggestion—do not start at the tail end by saying we need so much money for a laboratory because we want to do something. It is essential first to develop the proper program and administer the program in such effective manner as to present its value convincingly to the proper authorities within your State; then the money will become available. Availability of finance is more certain if we have a sound program in need of funds for operation and expansion than if we merely request funds with no program. The wells of finance can continue to flow only when properly fed with a needed purpose or proven needs.

Why is a modern weights and measures laboratory needed in a State? The laboratory and weights and measures program complement each other. The effectiveness of each is limited or restricted to the degree of benefit afforded by the other. A State has the statutory obligation to regulate the measurement of goods and services bought and sold within the State. Since measurement control is essential in all trade, buyers, sellers, producers, and manufacturers of commodities must know that their products meet certain measurement requirements. Therefore, the State has the fundamental obligation to supply to this group certain specific quantitative and measurement information. The fulfillment of these two obligations requires excellence in the administration and enforcement program, reference standards and laboratory facilities.

In the development of a State measurement center, there is another important phase and certainly a problem. After the construction of the laboratory building has been completed, new instruments installed, and new standards received, all of which is required in the modern laboratory, it really remains incomplete. The value of the laboratory to the program, State, and public, and the success of its operation are enhanced by the employment of qualified laboratory personnel. In my opinion, the person in charge should, at least, have the following five qualifications: (1) Suitable educational background; (2) clear understanding of requirements; (3) accuracy in performance; (4) dedication to the job; and (5) ability to speak the weights and measures language.

We will continue to strive for improvement as our program and laboratory provide the foundation for our future in the weights and measures field of service to our public.

(Following Mr. Jenning's address were the reports of the Conference Committee on Specifications and Tolerances, Nomination Committee, Committee on Laws and Regulations, Auditing Committee, and Treasurer. At the conclusion of the committee reports, Chairman Morgan presented the gavel to the incoming 54th National Conference Chairman, S. H. Christie, Jr., of New Jersey. The benediction was then delivered by the Conference Chaplain, Rev. R. W. Searles. Thereupon, the 53d National Conference on Weights and Measures was adjourned, *sine die.*)

AFTERNOON SESSION—THURSDAY, JUNE 20, 1968

(D. E. Konsoer, *Vice Chairman*, Presiding)

(Thursday's afternoon session was devoted to reports of the Conference committees, which can be found beginning below.)

REPORTS OF THE CONFERENCE COMMITTEES

REPORT OF THE CONFERENCE EXECUTIVE COMMITTEE

Presented by C. C. Morgan, *Chairman, City Sealer of Weights and Measures, Gary, Indiana*

(Tuesday, June 18, 1968)

The Executive Committee of the National Conference on Weights and Measures met in open session on Monday, June 17, 1968, at 8:30 a.m.

Conference dates and locations were reviewed and discussed. The Committee was reminded that there was a conflict this year with the annual meeting of the Association of Food and Drug Officials of the United States and that future Conferences should be so scheduled as to avoid such conflicts. (The Executive Secretary has been informed by AFDOUS officers that that organization will hold to a regular schedule of meeting during the third full week in June.)

A discussion ensued concerning the program schedule for future Conferences. It was the consensus that the meetings and events as scheduled for this year's Conference were to be recommended.

A discussion of the possibility of including in future Conferences formal exhibits such as were presented during the 50th Anniversary Conference brought out the view that exhibits at some future date were to be recommended but that regular annual exhibits could not be contemplated because of the obviously high expense to exhibitors.

The question was brought up as to the advisability of planning Conferences outside of Washington on a regular or irregular schedule. Although the delegates who voiced their views during the open session seemed to agree that an occasional Conference outside Washington provided advantages, no consensus developed as to an appropriate frequency for such scheduling.

After considerable discussion regarding means and methods by which associate members of the Conference might participate more vigorously in the business affairs of the Conference, it was recommended that the Organization and Procedure of the Conference be amended so as to provide for a Standing Committee on Associate Member Coordination. (Section 10 of the Organization and Procedure reads "Proposals for changes in organization or procedure of the Conference are not acted upon until the meeting of the Conference following the meeting at which such proposal is made.")

The Executive Committee, therefore, proposes that the Organization and Procedure be amended by including under the subsection titled *Standing committees*, of Section 5, appropriate reference to a Committee on Associate Member Coordination, and by inserting at the end of Section 7 the following language:

> *Committee on Associate Member Coordination.*—The Committee on Associate Member Coordination annually presents a report for Conference action. Its mission is to provide coordination and participation of associate members in all affairs of the Conference, including the development, where appropriate, of associate member recommendations and associate member consensus with respect to matters before the Conference, associate member participation in business and social affairs, and the promotion of associate member attendance at Conferences.

It is the view of the Executive Committee that the Conference would benefit from a larger attendance and a more active participation on the part of the delegates at the Open Meeting of the Executive Committee. This is the only opportunity of the delegates, including both members and associate members, to present and discuss their views on the planning of all details of future Conferences.

C. C. Morgan, *Chairman*
N. Berryman
J. T. Daniell
D. E. Konsoer
R. T. Williams
J. F. True
R. W. Searles
L. H. DeGrange
G. L. Delano
M. R. Dettler
K. G. Hayden
N. Kalechman
J. B. McGee
G. E. Mattimoe
J. C. Mays
D. I. Offner
A. W. Weidner, Jr.
M. W. Jensen, *Secretary*

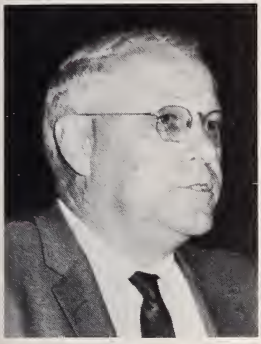
Executive Committee

(On motion of the Committee Chairman, seconded from the floor, the Report of the Executive Committee was adopted by voice vote.)

STATEMENT OF THE INCOMING CONFERENCE EXECUTIVE COMMITTEE

Presented by S. H. Christie, Jr., *Chairman, Deputy State Superintendent, Division of Weights and Measures, New Jersey Department of Law and Public Safety*

(Friday, June 21, 1968)



The Executive Committee for the 54th National Conference, including the newly elected officers, past chairmen of the Conference, and chairmen of standing committees, held its breakfast meeting on Friday morning for the purpose of considering plans for the Conference in 1969 and other matters that fall within its authority. A summary of matters that were discussed and those decisions that were reached follow:

1. The dates of June 8 through 13, 1969, were voted for the 54th National Conference.

2. The Sheraton-Park Hotel, Washington, D. C., was again selected as the site for the Conference.

3. Considerable discussion was devoted to the possibility of holding the 55th Conference in 1970 in some city other than Washington, D. C. The Executive Secretary was requested to explore this matter further and be prepared to make recommendations to the Committee during the 1969 Conference. The Committee agreed that a city in the western half of the Nation should receive preferential consideration.

4. The Committee voted its approval for the discontinuance of the Friday general meeting session. The Executive Secretary was delegated the responsibility of planning the program for the 54th Conference, following the usual format of time, events, speakers, and the like.

5. The registration fee remains unchanged.

6. An allocation of $300 was voted for the Committee on Education for expenses associated with National Weights and Measures Week and other committee expenses.

7. The Executive Secretary was authorized to establish an informal associate membership coordinating committee to study and make recommendations concerning the needs and interests of the associate membership of the Conference. It was suggested that a study on the feasibility of having exhibits at the Conference by the trade and industry would be an appropriate item for the committee to consider initially.

8. Other discussions centered on a variety of items involving the program and arrangements for the 54th National Conference. Many helpful suggestions were offered for program topics, speakers and social events. The Committee expressed its desire to have the Executive Secretary solicit further suggestions from other Conference members to aid in planning details for the Conference in 1969.

REPORT OF THE CONFERENCE COMMITTEE ON LIAISON WITH THE NATIONAL GOVERNMENT

Presented by J. H. Lewis, *Chief, Weights and Measures Section, Department of Agriculture, Olympia, Washington*

(Tuesday, June 18, 1968)

The mission of the Committee is to represent the Conference to the National Government, and to consider and make recommendations on matters before the Conference, and on matters concerning relationships of Conference members and associate members with the National Government and particularly with the National Bureau of Standards.

The Committee's attention has been focused on the relationship of the Conference membership and the agencies of the Federal Government responsible for implementation of the Fair Packaging and Labeling Act. The Committee feels that the Conference should take firm action in this area to make its voice heard.

It is a matter of record that the Federal regulatory agencies, FDA and FTC, are looking to the States for the enforcement of FPLA. Repeated assurances have been made to this effect. Despite these assurances, no guidelines have been forthcoming from the agencies concerned, and the States have had little or no voice in the promulgation of regulations under FPLA, even though the Federal regulatory agencies were invited to participate in the 52d Conference, at which time the Model Law was amended to bring it into harmony with FPLA.

Additionally, the Committee has learned that the USDA has established an Advisory Committee to assist that agency in the implementation of the new Meat Inspection Act. This advisory group has packaging and labeling requirements under consideration, but to our knowledge has no weights and measures representation, nor has there been any consultation with weights and measures officials.

The Committee recommends that the Office of Weights and Measures should review all proposed regulations prior to transmission to the

States. All comments regarding such proposals should then be reviewed by the Committee on Liaison with the National Government and transmitted to the appropriate Federal agency so as to insure that the voice of the Conference receives adequate consideration.

It is the view of the Committee that the Conference's long record of responsible activity and success in attaining uniformity in the promulgation and implementation of equitable, workable, and enforceable packaging and labeling requirements should not be ignored. Further, the Conference affords a convenient mechanism made up of uniquely qualified individuals to bring about the uniformity mandated by Congress and clearly expressed in Section 9 of the Fair Packaging and Labeling Act.

In view of these developments, it is proposed that the Liaison Committee take all necessary steps to inform the several Federal agencies of the need to work with the National Conference through the Liaison Committee in order to insure that regulations will be in harmony with weights and measures principles and thus enforceable by weights and measures officials.

A motion was made, seconded, and unanimously adopted that the Committee request the Resolutions Committee to draft a strongly worded resolution calling upon the appropriate Federal agencies to consult with the Liaison Committee in promulgating and implementing any regulations pertaining to the Fair Packaging and Labeling Act for the purpose of utilizing the knowledge and experience of the National Conference on Weights and Measures. The request has been made.

A recommendation was received from the floor that such a resolution receive wide distribution, including appropriate Congressional committees.

The Committee was asked from the floor to endorse the active participation by the Government of the United States in the International Organization of Legal Metrology and to communicate this endorsement to the Department of State. The Committee does endorse such participation and will appropriately pursue the matter upon adoption of this Report by the Conference.

J. H. Lewis, *Chairman*
K. C. Allen
R. J. Fahey
E. E. Wolski
R. C. Primley
M. W. Jensen, *Secretary*
E. A. Vadelund, *Staff Assistant*

Committee on Liaison with the
National Government

(On motion of the Committee Chairman, seconded from the floor, the report of the Committee on Liaison with the National Government was unanimously accepted by voice vote.)

REPORT OF THE CONFERENCE COMMITTEE ON EDUCATION

Presented by W. I. Thompson, *County Superintendent of Weights and Measures, Monmouth County, New Jersey*

(Thursday, June 20, 1968)

1. INTRODUCTION

The Committee on Education continues to encourage a multiplicity of interests in the broad field of weights and measures education. The Committee is committed to a program of encouraging the technical training of weights and measures officials, the education of the general public on weights and measures matters, developing information for aiding and instructing the users of weighing and measuring devices, and assisting with the development of public relations programs for weights and measures officials and organizations.

2. FORMAL TECHNICAL EDUCATION

It is very gratifying to note the continued expansion and success now enjoyed by the Measurement Science Course offered by Alfred State Technical College in New York. The demand for measurement technicians far exceeds the supply. To remain competitive in the recruitment of students, some form of financial support for desirable students must be provided. A Measurement Science Course Scholarship Fund has been established by members of industry and was originally chaired by the energetic Mr. Mack Rapp of Detecto Scale Company. The Committee quotes from a recent report from Mr. Rapp regarding the Fund: "At the National Scale Men's Association Annual Technical Conference in St. Louis, an assortment of activities, spontaneously started, raised about $1,700, the bulk of which was for the Measurement Science Scholarship Fund. Although we are still a distance from the goal of $100,000, there is no doubt that we are making excellent progress and there is no question but this sum will be reached."

The Committee wishes to commend Mr. Rapp, Mr. Gene Fishman, who has succeeded to the chair, and all other industry officials for their untiring efforts in raising money for the Scholarship Fund, and hopes that weights and measures officials and appropriate organizations will give full support to this important and worthwhile project.

3. TECHNICAL TRAINING SCHOOLS

The Committee acknowledges with thanks the outstanding contributions being made by the Office of Weights and Measures, National Bureau of Standards, evidenced by their continued field training and technical training schools. Twenty-five individual State technical training schools were held during the past year, and it is the plan of the Bureau to continue to offer this important program of training to any State requesting the service. It is gratifying to note the resumption of the Supervisor Training Schools at the National Bureau of Standards and to learn that such schools will be offered on an annual basis in the future. This is indeed a worthwhile project as evidenced by the fact that 44 State, county, and city supervisors participated in the most recent school for supervisors held May 6–10, 1968, at the Bureau's facilities in Gaithersburg.

We hope it is the plan of the Office of Weights and Measures to expand the present Home Study Course to include additional subject matter pertinent to weights and measures activity. We believe uniformity can be greatly increased through the use of such material.

4. WEIGHTS AND MEASURES HANDBOOK

Your Committee on Education believes that a general information handbook, for use by weights and measures officials, would be desirable. Such a handbook could contain among other items: (a) suggestions for a Home Study Course, (b) an outline of public education techniques, and (c) suggested presentations such as talks and other programs for use in the dissemination of information relating to our work.

The Scale Manufacturer's Association consistently makes available quantities of excellent public relation material and suggestions which have been offered for use in such a handbook.

5. NATIONAL WEIGHTS AND MEASURES WEEK

Mr. B. A. Pettit, Chief, Weights, Measures and Markets, Washington, D.C., graciously volunteered to chair the Sub-Committee for the week and acted as the coordinator of nationwide activity.

The number of reports received from the participating jurisdictions has been very disappointing, but judging from those reports received the "Week" was a success. However, during the Committee's open meeting, many fine suggestions were offered for consideration by the subcommittee in its effort to improve the planning, conduct, and reporting of the Week's activity.

Weights and Measures Week had the complete support and backing of the National Conference and received immeasurable help from various industries, organizations, and individual business concerns and particularly the scale industry, who once again made available to the weights and measures officials large amounts of promotional material.

6. GENERAL INFORMATION BROCHURE

The Conference has been approached by Mrs. Margaret Dana, syndicated columnist, with the suggestion that an appropriate brochure or leaflet be prepared containing information outlining the purposes and activities of weights and measures officials and directions as to how and where to register consumer complaints. This material would be used by Mrs. Dana and others in answering the many letters received regarding weights and measures activity. The Committee endorses this suggestion and the interest in weights and measures activity evidenced by Mrs. Dana. The Committee will accept an assignment to undertake the preparation of a meaningful and informative brochure on the subject of weights and measures enforcement.

The Committee wishes to publicly register its appreciation for the attendance at and participation in Monday's open meeting and to offer our sincere thanks to all who have cooperated and assisted throughout the year, particularly during National Weights and Measures Week.

W. I. Thompson, *Chairman*
L. A. Gredy
J. I. Moore
A. D. Rose
B. A. Pettit
M. W. Jensen, *Secretary*
R. N. Smith, *Staff Assistant*

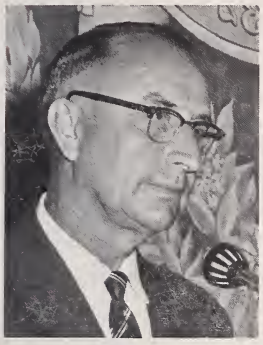
Committee on Education

(On motion of the Committee Chairman, seconded from the floor, the Report of the Committee on Education was adopted by voice vote.)

REPORT OF THE CONFERENCE COMMITTEE ON SPECIFICATIONS AND TOLERANCES

Presented by H. D. Robinson, *Chairman, Deputy State Sealer, Bureau of Weights and Measures, State of Maine*

(Thursday, June 20, 1968)



The Committee on Specifications and Tolerances submits its report to the 53d National Conference on Weights and Measures. The report consists of the Tentative Report, transmitted during early May as part of the Conference Announcement, 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 representations made during the open meeting of the Committee. All recommended "amendments" are to appropriate provisions of the codes of National Bureau of Standards Handbook 44—3d Edition, *Specifications, Tolerances, and Other Technical Requirements for Commercial Weighing and Measuring Devices.*

1. GENERAL CODE

General Application paragraph G–A.1. COMMERCIAL AND LAW-ENFORCEMENT EQUIPMENT.—The Committee recommends that subsection (c) of this paragraph be amended by adding at the end "or for the collection of statistical information by government agencies", *thus making the subsection read:*

(c) To weighing and measuring equipment in official use for the enforcement of law or for the collection of statistical information by government agencies.

For an explanation of this recommendation, see the Scale Code.

(The foregoing item was adopted by voice vote.)

General Specifications paragraph G–S.1. IDENTIFICATION.— The Southern Weights and Measures Association has recommended that this paragraph be amended by adding a nonretroactive requirement to the effect that each weighing and measuring device be marked with a serial number in order that weights and measures officials may be able officially to identify a particular device. The Committee feels

this is a worthwhile suggestion and feels further that no hardship would result to equipment manufacturers.

The Committee recommends that General Specifications paragraph G–S.1. be amended by adding at the end the following nonretroactive sentence:

Each commercial weighing and measuring device, except those with no moving or electronic component parts (such as weights, liquid measures, and milk bottles), shall be clearly and permanently marked on an exterior surface with a nonrepetitive serial number.

(The foregoing item was adopted by voice vote.)

General User Requirements paragraph G–UR.2.1. INSTALLATION.—A recommendation has been received from the Western Weights and Measures Association to the effect that this paragraph be so amended as to require that a device be installed according to instructions marked on the device instead of, as presently is required, being installed in accordance with the manufacturer's instructions, including any instructions marked on the device. The justification for the recommendation is that a weights and measures official does not always have available to him information on the manufacturer's instructions.

The Committee is of the view that the requirement as presently composed is stronger, and that, since this is a requirement directed to the user of the device, availability of the manufacturer's instructions is the responsibility of the user. If the official deems such instructions necessary, he can demand that the user obtain these from the manufacturer. Surely, it is inconceivable that full installation instructions could be marked on any device.

It is the opinion of the Committee that no amendment to the code is required.

(The foregoing item was adopted by voice vote.)

General User Requirement paragraph G–UR.2.2. INSTALLATION OF INDICATING OR RECORDING ELEMENT.—The 52d National Conference added to the General Code a User Requirement as follows:

G–UR.2.2. INSTALLATION OF INDICATING OR RECORDING ELEMENT.—A device shall be so installed that an indicating or recording element is reasonably adjacent to the weighing or measuring element; otherwise, there shall be means for direct and convenient communication (oral or visual) between the primary indicating or recording element and the weighing or measuring element.

Mr. Lewis of Washington pointed out that it is entirely possible for an indicating or recording element to be located reasonably adjacent to the weighing or measuring element and yet to be separated therefrom by an obstruction, even a floor-to-ceiling wall. *In order to eliminate any difficulty in interpretation, the Committee recommends that this paragraph be amended as follows:*

G–UR.2.2. INSTALLATION OF INDICATING OR RECORDING ELEMENT.—A device shall be so installed that there is no obstruction between a primary indicating or recording element and the weighing or measuring element; otherwise, there shall be convenient means for direct communication, oral or visual, between an individual located at a primary indicating or recording element and an individual located at the weighing or measuring element.

(The foregoing item was adopted by voice vote.)

2. SCALE CODE

General.—The Western Weights and Measures Association recommended that a requirement be added to the Scale Code stipulating, for vehicle and livestock scales, a minimum pit depth of 48 inches. This matter has been discussed in the Committee and by the Conference many times. The opinion has prevailed that any minimum pit depth would be unnecessarily restrictive and would, in certain instances, prohibit the installation of a desirable scale.

The Committee has been informed that the Scale Manufacturers Association is working on a standard for the installation of vehicle and livestock scales and that consideration will be given by that association to the processing of such a standard through the voluntary product standards program of the National Bureau of Standards. The Committee commends manufacturers for pursuing this course of action.

The Committee feels that pit depths according to manufacturer recommendations are adequate to assure appropriate performance of large scales and, thus, recommends no action.

(The foregoing item was adopted by voice vote.)

Application paragraph A.2. WHEEL-LOAD WEIGHERS AND AXLE-LOAD SCALES and User Requirements paragraph UR.3.5. FOR WHEEL-LOAD WEIGHERS ONLY.—Discussions between officials of the Bureau of Public Roads, U.S. Department of Transportation, and the Committee Secretary have led to a recommendation that General Application paragraph G–A.1., Scale Code Application paragraph A.1., and User Requirements paragraph UR.3.5. be amended so as to (1) bring under the provisions of the Handbook

those wheel-load weighers that are being used by the States for the purpose of collecting necessary statistical data and (2) require that vehicles with elements being weighed on wheel-load weighers be in a reasonably level condition at the time of such weighing.

The Committee is convinced that the reasoning for these changes is sound, and, accordingly, recommends that Application paragraph A.2. be amended to read:

A.2. WHEEL-LOAD WEIGHERS AND AXLE-LOAD SCALES.—The requirements for wheel-load weighers and axle-load scales apply only to such scales in official use for the enforcement of traffic and highway laws or for the collection of statistical information by government agencies.

and that User Requirements paragraph UR.3.5. be amended to read:

UR.3.5. FOR WHEEL-LOAD WEIGHERS ONLY.

UR.3.5.1 USE IN PAIRS.—When wheel-load weighers are to be regularly used in pairs, both weighers of each such pair shall be appropriately marked to identify them as weighers intended to be used in combination.

UR.3.5.2. LEVEL CONDITION.—A vehicle, for which either an axle-load determination or a gross-load determination is being made utilizing wheel-load weighers, shall be in a reasonably level position at the time of such determination.

(The foregoing item was adopted by voice vote.)

Specifications paragraph S.2.1.2. BALANCE BALL.—Through amendment by the 52d National Conference, notification was given that this specification paragraph would become retroactive as of July 1, 1975. Thus, this paragraph was amended to read as follows:

S.2.1.2. BALANCE BALL.—*Except on cream-test, moisture-test, jewelers, prescription, prepackaging, and checkweighing scales, a balance ball or similar device shall not itself be rotatable unless the balancing device is automatic in operation or it is enclosed in a cabinet.* [1956] (*This specification will become retroactive as of July 1, 1975.*)

The Committee received a communication from the Chairman of the Scale Subcommittee of Committee No. 14, American Railway Engineering Association, which claimed that such a deadline, in the case of scales operated by the railroad industry, would be without justification in relation to the necessary financial investment. The Committee does not agree with this position. It feels that the rotatable

balance ball does introduce definite possibilities of inaccurate balance condition and, further, does lend itself to the perpetration of fraud. Eight years surely is adequate for scale modification that does not require a large investment. *The Committee, therefore, recommends no amendment with regard to the retroactive date of July 1, 1975.*

However, on the basis of further discussion during the open meeting, the Committee feels that this paragraph should be clarified, and accordingly recommends that paragraph S.2.1.2. be amended to read as follows:

S.2.1.2. BALANCE BALL.—Except on cream-test, moisture-test, jewelers, prescription, prepackaging, and checkweighing scales, a balance "ball" shall not itself be rotatable unless the balancing device is automatic in operation or it is enclosed in a cabinet. (This specification will become retroactive as of July 1, 1975.)

(The foregoing item was adopted by voice vote.)

Scales with Multiple Load-Receiving Elements.—The Toledo Scale Company, a manufacturer of scales with single indicating elements coupled to two or more load-receiving elements, suggested the advisability of adding a specification paragraph to the code to require an interlock that would assure that only one load-receiving element could be coupled to the indicating element, except when the sum of the loads on all load-receiving elements is desired. The Committee believed this to be a progressive and responsible suggestion and, accordingly, recommended the addition of specifications paragraph S.4.3., reading as follows:

S.4.3. MULTIPLE LOAD-RECEIVING ELEMENTS.—On a device with a single indicating element, a single recording element, or a combination indicating-recording element equipped with two or more load-receiving elements, means shall be provided to prohibit the activation of more than one load-receiving element except when the indicating or recording of the sum of the loads on all load-receiving elements is necessary, and automatic means shall be provided to show which single load-receiving element is active and in service or that all load-receiving elements are active and in service.

The Committee received requests from several scale manufacturers during the open meeting to hold this item in abeyance. *On further consideration, the Committee agrees that action by this Conference might well be premature.* The Committee has been assured by the manufacturers that they will, without delay, address themselves to the problem and to such engineering modification as a requirement of this type might entail. Further, the Committee wishes to express its conviction that scales that have a single indicating or recording element and that

are equipped with more than one load-receiving element located remotely one from the other do offer the distinct possibility of both inaccurate results and deliberate misuse.

(The foregoing item was adopted by voice vote.)

Sensitivity Requirements paragraph SR.5. [SENSITIVITY REQUIREMENTS] FOR CLASS A PRESCRIPTION SCALES AND JEWELERS SCALES.—Once again recommendations have been received for the modification of this paragraph by doubling the SR requirement from 0.1 grain to 0.2 grain. The position is taken that many knife-edge prescription scales cannot meet the 0.1-grain SR requirement.

In its report to the 52d National Conference, the Committee recommended that its Secretary undertake a study of this matter and report to it. A study indicated definitely that certain knife-edge balances cannot meet the present requirement and also that prescription scales are infrequently used today, with such use normally being quite critical. Since there is an adequate supply of prescription scales that will meet this requirement, the Committee sees no justification for additional leniency.

No amendment is recommended.

(The foregoing item was adopted by voice vote.)

User Requirements paragraph UR.2.3. PROTECTION AGAINST WIND AND WEATHER EFFECTS.—Mr. John Daniell, the City of Detroit, has expressed the view that the limitation of this paragraph to application only to permanently installed scales is not consistent with the demand for accurate commercial weighing and has recommended that the paragraph be amended so as to require that the indicating elements, the lever system or load cells, and the under side of the load-receiving elements of all scales be adequately protected against wind and weather effects. This appeared to be a sound suggestion, and the Committee accordingly recommended that user requirements paragraph UR.2.3. be amended to read as follows:

UR.2.3. PROTECTION AGAINST WIND AND WEATHER EFFECTS.—The indicating elements, the lever system or load cells, and the under side of the load-receiving element of a scale shall be adequately protected against wind and weather effects.

Several weights and measures officials and a number of representatives of scale manufacturers, appearing before the Committee during its open meeting, opposed the adoption of this requirement. To provide

such protection as seems at this time to be appropriate, the Committee recommends an amendment to this user requirement and records the expressed willingness of scale manufacturers to participate in a technical study to determine what further modifications might be desirable. *The Committee, accordingly, now recommends that UR.2.3. be amended to read as follows:*

UR.2.3. PROTECTION AGAINST WIND AND WEATHER EFFECTS.—The indicating elements, the lever system or load cells, and the under side of 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.

(The foregoing item was adopted by voice vote.)

User Requirements paragraph UR.2.5. ACCESS TO PIT.—The Committee has noted what appears to be a technical error in the language of this paragraph which requires that adequate provision be made for ready access to a pit of a vehicle, livestock, or animal scale. It seems obvious that such requirement should pertain only to permanently installed scales.

The Committee recommends that the paragraph be amended to read as follows:

UR.2.5. ACCESS TO PIT.—Adequate provision shall be made for ready access to the pit of a permanently installed vehicle, livestock, or animal scale for purposes of inspection and maintenance.

(The foregoing item was adopted by voice vote.)

TENTATIVE CODE FOR BELT-CONVEYOR SCALES

It is the conviction of the Committee that weights and measures officials and equipment manufacturers and installers have had insufficient experience with this tentative code to recommend either amendments or its removal from tentative status. Officials should definitely examine belt-conveyor scales in commercial used and transmit to the Committee Secretary information on design, installation, use, and performance in order that this tentative code can be given the type consideration it deserves.

In the meantime, the Committee recommends that the code remain a tentative code.

Acknowledgment should be noted of efforts by the Instrument Society of America and by a group of manufacturers on the West

Coast, both of which have been devoting time to the development or perfection of code requirements for belt-conveyor scales.

(The foregoing item was adopted by voice vote.)

CODE FOR LIQUID-MEASURING DEVICES

Commercial use of Totalizer on Retail Motor-Fuel Dispensers.—In its report to the 52d National Conference, the Committee noted its condemnation of the practice of certain petroleum marketers to sell liquid motor fuel as tabulated by the totalizer on a retail motor-fuel dispenser—a "counter" that was not designed for commercial measurement purposes and does not meet the requirements for commercial liquid-measuring devices.

The Secretary of the Committee has been in consultation with the Weights and Measures Committee of the Gasoline Pump Manufacturers Association and, subsequently, has demonstrated to the S&T Committee a modified totalizer that does meet the requirements for an indicating element of a "wholesale device."

The Committee has been assured that this modified totalizer soon will be installed on all new retail motor-fuel devices and, as time permits, will replace the existing totalizers on devices in service on which the totalizer is being used for commercial measurement. This is deemed to be satisfactory and is evidence of the willingness of the industry to cooperate in the solution a troublesome problem.

The Committee notes specifically that the requirements pertaining to indicating elements included in the Code for Liquid-Measuring Devices that are applicable to the totalizers in commercial service are only those that are appropriate for a wholesale device, even though the totalizer is installed in a "retail device."

(The foregoing item was adopted by voice vote.)

CODES FOR LIQUID-MEASURING DEVICES AND VEHICLE-TANK METERS

Tolerances.—The petroleum and metering industries reported to the National Conference last year on a comprehensive survey that had been initiated in an effort to determine meter measurement capability with respect to currently used testing equipment and testing procedures. That survey has continued and has identified certain specific issues that will require substantial further exploration. These include a specific identification of "tolerances" as these relate to meter testing together with identification of factors that affect tolerances; a discrimination of the several tolerances appropriate for metering systems

and a determination as to the application of each; the design, calibration, and maintenance of meter provers; and the effect of both product and ambient temperatures on meter proving.

The Committee is of the view that it is to the advantage of meter users and their customers that this study continue. It has been assured that staff members of the Office of Weights and Measures will participate as appropriate and that the Committee members will be kept fully informed.

(The foregoing item was adopted by voice vote.)

PROPOSED CODE FOR LIQUID-FERTILIZER LIQUID-MEASURING DEVICES

The communication received by the Committee from the Southern Weights and Measures Association included a recommendation that a code should be added to the Handbook to cover "the various types of meters and applicator tanks used in the sale of liquid-fertilizer."

As has been reported to the Conference on numerous occasions, the Office of Weights and Measures developed a number of years ago a special prover designed for the testing of liquid-fertilizer meters. The States have been made aware of the existence of this prover and of the desire of the staff of the Office of Weights and Measures to locate fertilizer meters in commercial service in order that experience may be obtained in the use of the equipment, techniques may be refined, and requirements for a code may be identified. To date practically no requests from the States have been received.

A survey was made as to statutory requirements among the States. This survey identified many State laws that required the sale of fertilizer by weight and thus prohibit accurate use of liquid meters in commercial sale of the product. (The introduction of conversion factors based on unknown densities surely should be discouraged by weights and measures officials.)

The Committee wishes to make it quite clear that its recommendation is that fertilizer in dry form should be sold by weight and that, when fertilizer in liquid form is sold in terms of liquid measure, accurate liquid-metering systems should be used. Liquid meters should not indicate values in terms of weight units, and values in terms of liquid units should not be converted to weight units on the basis of a "reported" conversion factor.

When the legal and appropriate use of liquid-measuring devices in the sale of liquid-fertilizer has reached sufficient magnitude to warrant the development of a code, the Committee will give such development its full attention.

(The foregoing item was adopted by voice vote.)

Specifications paragraph S.3. DESIGN OF COMPARTMENT DISCHARGE MANIFOLD.—This nonretroactive paragraph, adopted in 1960, reads as follows:

S.3. DESIGN OF COMPARTMENT DISCHARGE MANIFOLD.—*When two or more compartments discharge through a common manifold or other single outlet, effective means shall be provided to insure*

(*a*) *that liquid can flow through the delivery line leading from only one compartment at one time and cannot flow from one compartment into another compartment, or*

(*b*) *that all compartments will discharge simultaneously.*

If the discharge valves from two or more compartments are automatically so controlled that they can only be operated together, thus effectively connecting these compartments each to the other, such compartments shall, for purposes of this paragraph, be construed to be one compartment. [1960]

The Southern Weights and Measures Association has recommended that when liquid is being delivered from a single compartment, flow of liquid from one compartment to another is automatically prevented. After a thorough discussion on this matter, the Committee feels that such a requirement is worthy of serious consideration by the Conference.

The Committee recommends that Specifications paragraph S.3. be amended to read as follows:

S.3. DESIGN OF COMPARTMENT DISCHARGE MANIFOLD.—*When two or more compartments discharge through a common manifold or other single outlet, effective means shall be provided to insure*

(a) that liquid can flow through the delivery line leading from only one compartment at one time and that flow of liquid from one compartment to another is automatically prevented, or

(b) that all compartments will discharge simultaneously.

***If the discharge valves from two or more compartments are automatically so controlled that they can only be operated together, thus effectively connecting these compartments each to the other, such compartments shall, for purposes of this paragraph, be construed to be one compartment.* [1960]**

["Automatic provision" in (a) adopted 1968.]

(The foregoing item was adopted by voice vote.)

CODE FOR MEASURE-CONTAINERS

Specifications paragraph S.4.2. [MARKING] *CAPACITY STATEMENT.*—It is probable that specifications paragraphs S.4.2., S.4.2.1., and S.4.2.2. will require amendment to assure full compatibility with the regulations issued under the Fair Packaging and Labeling Act of 1966. This matter is being explored with appropriate Federal agencies by the Committee, and the Committee has no recommendations to make at this time.

(The foregoing item was adopted by voice vote.)

CODE FOR GRADUATES

In its report to the 52d National Conference, the Committee noted (1) the plan of the Conference that each existing nonretroactive requirement be rechecked after it has been effective for 10 years to determine the appropriateness of changing this requirement to a retroactive status and (2) that there are 5 specifications paragraphs in the Code for Graduates with effective dates of 1956. The Committee Secretary has studied this matter and is of the opinion that all of these paragraphs should become retroactive as of July 1, 1970.

Accordingly, the Committee recommends that Specifications paragraphs S.1. UNITS, S.2. INITIAL INTERVAL, S.3. SHAPE, S.7.2. ON A SINGLE-SCALE GRADUATE, and S.8. BASIS OF GRADUATION be amended by adding at the end of each paragraph ***"(This specification will become retroactive as of July 1, 1970.)"***

(The foregoing item was adopted by voice vote.)

CODE FOR FABRIC-MEASURING DEVICES

Specifications paragraph S2.1.3. CLEAR INTERVAL BETWEEN GRADUATIONS.—Staff members of the Office of Weights and Measures have been working with the principal manufacturer of fabric-measuring devices during the past year in an effort to facilitate the production of more useful and more versatile machinery. During this work, it became apparent that the requirement in this paragraph for at least 11/16-inch clear interval between 1/8-yard graduations is unnecessary and unrealistic. In no other code is there a requirement for such a clear interval. (History seems to indicate that this dimension originated from a dimension of an early model of a fabric-measuring device.)

The Committee recommends that Specifications paragraph S.2.1.3. be amended to read

S.2.1.3. CLEAR INTERVAL BETWEEN GRADUATIONS.—The clear interval between graduations shall be at least ¼ inch for ⅛-yard graduations, and ⅛ inch for 1-inch graduations.

(The foregoing item was adopted by voice vote.)

CODE FOR CORDAGE-MEASURING DEVICES

A manufacturer of wire and cordage-measuring devices has suggested that the Code for Cordage-Measuring Devices needs revision in at least three particulars: (1) The code should require that a wire or cordage-measuring device have marked clearly thereon limitations as to its use, particularly with respect to the types of cordage, rope, wire, or cable that can be accurately measured with it, (2) the code should stipulate that a device be tested with the materials it sets itself forth as being capable of measuring accurately and not be tested with a steel tape, and (3) the tolerances set forth in the code are unreasonably small.

As a result of this recommendation, the Office of Weights and Measures has initiated a study of cordage-measuring devices. Eight wire and/or cordage-measuring devices submitted by three suppliers are being used in the study. None of the devices complies fully with the Cordage-Measuring Device Code requirements as presented in Handbook 44. The most serious violation in all devices examined was in relation to Specifications paragraph S.2.3., which reads:

S.2.3. RETURN TO ZERO.—Primary indicating elements shall be readily returnable to a definite zero indication. Means shall be provided to prevent the return of the indicating elements beyond their correct zero position.

Requirements covering graduations and indicators were also not fully complied with by these devices.

Another meter just recently has been received that the manufacturer claims meets the requirements of S.2.3. This will be evaluated.

A group of 16 materials (12 wire or cable and 4 cordage), in addition to a steel tape (½-inch wide, 100 feet intaglio figures and graduations), are being used to evaluate the devices.

It has been noted that a meter that does not have a feed-in guide or tube several inches removed from the rollers but in the same horizontal plane can be made to over-register if the wire or cordage is held above the plane or under-register if held below the plane.

The Committee recommends no action with respect to this code at this time and will await the final outcome of the investigation by the

Office of Weights and Measures before analyzing the code for needed revision.

(The foregoing item was adopted by voice vote.)

CODE FOR ODOMETERS

The Committee is aware that under Application paragraph A.2. of this code, cargo vehicles (trucks) are not covered and that the Conference has been kept aware of any progress in development of requirements for such vehicles. The Committee Secretary has asked the manufacturers of trucks for a report on efforts in the field of truck vehicle accuracy and for a schedule as to when the study now going on will be completed. Since the Committee has received no concrete information, it has no recommendation to make at this time.

(The foregoing item was adopted by voice vote.)

Once again the Committee is impressed and gratified by the willingness of weights and measures officials and representatives of business and industry to give of their time in matters under consideration by the Committee.

Mr. McCarthy of Boston was able to attend the interim meeting of the Committee in Washington and contributed greatly through letter communications. He unfortunately was unable to attend and participate in this 53d National Conference. It is exceedingly important that members of standing committees of the Conference be at the Conference and provide the benefit that their attendance and counsel brings to weights and measures administration generally.

H. D. Robinson, *Chairman*
J. F. McCarthy
R. Rebuffo
D. E. Konsoer
R. L. Thompson
M. W. Jensen, *Secretary*
H. F. Wollin, *Staff Assistant*
Committee on Specifications and Tolerances

(Mr. Robinson moved for adoption and, after a second from the floor, the Report of the Conference Committee on Specifications and Tolerances was adopted by the Conference by voice vote.)

(On motion of the committee chairman, seconded from the floor, the Conference by voice vote authorized the National Bureau of Standards to make any appropriate editorial changes in the language adopted by the Conference, so long as the principles thus adopted are strictly adhered to.)

REPORT OF THE CONFERENCE COMMITTEE ON LAWS AND REGULATIONS

Presented by W. A. Kerlin, *Chief, Bureau of Weights and Measures, Department of Agriculture, State of California*

(Thursday, June 20, 1968)

The Committee on Laws and Regulations submits its report to the 53d National Conference on Weights and Measures. The report consists of the Tentative Report as amended by the Final Report and as further amended from the floor during presentation of the Final Report to the Conference.

The Conference Committee on Laws and Regulations feels that this Report deals with some of the most complicated and most important issues ever presented by it to the National Conference and, therefore, urges all weights and measures officials to study its contents carefully.

1. THE MODEL REGULATION PERTAINING TO PACKAGES

SEC. 1. MEANINGS OF TERMS (9).—Subsection 9 of Section 1 of the Model Law defines "consumer package" or "package of consumer commodity" in terms that are found in the Fair Packaging and Labeling Act of 1966. This definition includes, as its last clause, "and which usually is consumed or expended in the course of such consumption or use." The Committee can forsee many delicate interpretations of this language and sees no advantage in retaining it in the Model Law, since a consumer package or package of consumer commodity obviously is one that is sold through retail sales agencies, etc. Accordingly, *the Committee recommends the deletion of the last clause of this definition*, which deletion will make subsection 9 of Section 1 of the Model Law read:

(9) A "consumer package," or "package of consumer commodity," shall be construed to mean a commodity in package form that is customarily produced or distributed for sale through retail sales agencies or instrumentalities for consumption by individuals, or use by individuals for the purposes of personal care or in the performance of services ordinarily rendered in or about the household or in connection with personal possessions.

(The foregoing amendment was adopted unanimously by voice vote.)

SEC. 2. SYSTEMS OF WEIGHTS AND MEASURES.—The Committee is concerned that the present language of this section, which reads in part, "The system of weights and measures in customary use in the United States and the metric system of weights and measures are jointly recognized, and one or the other of these systems shall be used for all commercial purposes . . .", might be interpreted as implying exclusivity; whereas the labeling of packages in both systems is to be encouraged. *The Committee, therefore, recommends that the first sentence of Section 2 be amended to read:*

SEC. 2. SYSTEMS OF WEIGHTS AND MEASURES.—The system of weights and measures in customary use in the United States and the metric system of weights and measures are jointly recognized, and either one or both of these systems shall be used for all commercial purposes in the State of _____.

(The foregoing amendment was adopted unanimously by voice vote.)

SEC. 29. [METHOD OF SALE OF COMMODITIES]: ADVERTISING PACKAGES FOR SALE.—The regulations issued by the Food and Drug Administration and by the Federal Trade Commission pursuant to the Fair Packaging and Labeling Act, as well as the Model Regulation Pertaining to Packages recommended later in this tentative report, require that certain packages of consumer commodities be labeled in terms of two units of weight or measure (for example, packages of one pound or more and less than four pounds and labeled in weight units must have their contents declared both in ounces and in pounds). It is the opinion of the Committee that such dual declarations of quantity are unnecessary in advertisements. Accordingly, *the Committee recommends that Section 29 of the Model Law be amended to read:*

SEC. 29. [METHOD OF SALE OF COMMODITIES]: ADVERTISING PACKAGES FOR SALE.—Whenever a commodity in package form is advertised in any manner and the retail price of the package is stated in the advertisement, there shall be closely and conspicuously associated with such statement of price a declaration of the basic quantity of contents of the package as is required by law or regulation to appear on the package: *Provided,* That where the law or regulation requires a dual declaration of net quantity to appear on the package, only the declaration that sets forth the quantity in terms of the smaller unit of weight or measure (the declaration that is required to appear first and without parentheses on the package) need appear in the advertisement: *And provided further,* That there shall not be included as part

of the declaration required under this section such qualifying terms as "when packed," "minimum," "not less than," or any other terms of similar import, nor any term qualifying a unit of weight, measure, or count (for example, "jumbo," "giant," "full," and the like) that tends to exaggerate the amount of commodity in the package.

(The foregoing amendment was adopted unanimously by voice vote.)

SEC. 35. FLUID DAIRY PRODUCTS.—The Committee has been urged by producers of a 10-quart plastic dispenser for milk to amend this section of the Model Law so as to permit the sale of a 10-quart unit. Two specific and persuasive points have been made: (1) The 10-quart dispenser has found acceptance in approximately 40 States, and (2) the 10-quart dispenser is so designed as to make full and efficient use of existing milk bottle cases.

The Committee is seriously concerned that so many State jurisdictions either have brought about amendments in conflict with the Model Law or have permitted the sale of an item in conflict with law. It is the firm conviction of the Committee that weights and measures officials throughout the United States should guard zealously against encroachment on standard sizes and that industry representatives should bring to the Conference, and not to the individual States, their requests with respect to additional sizes.

Additional representations were made to the Committee subsequent to the issuance of the Tentative Report and during its open meeting as to the need and justification for the inclusion of a 6-quart container for fluid dairy products. The Committee cannot recommend such an inclusion. As was declared in its report to the 52d Conference and in its Tentative Report to this Conference, the Committee takes the position that further extension of the quantities in which fluid dairy products are sold would be in direct contradiction to the will of the Congress and of this Conference with respect to proliferation of quantities in which this product is offered for sale.

Accordingly, *the Committee recommends that Section 35 be amended to read:*

SEC. 35. FLUID DAIRY PRODUCTS.—All fluid dairy products, including but not limited to whole milk, skimmed milk, cultured milk, sweet cream, sour cream, and buttermilk, shall be packaged for retail sale only in units of 1 gill, ½ liquid pint, 10 fluid ounces, 1 liquid pint, 1 liquid quart, ½ gallon, 1 gallon, 2 gallons, 2½ gallons, or multiples of 1 gallon: *Provided*, That packages in units of less than 1 gill shall be permitted.

MR. MEEK, INDIANA: I would like to make a motion to further amend Section 35 so as to include, in addition to a 10-quart, or 2½-gallon, size, a 6-quart, or 1½-gallon, size.

(Mr. Meek's motion was seconded after some discussion supporting the motion; a voice vote was called for. The voice vote favored the motion to include a 6-quart container as one of the prescribed units in Section 35.)

VICE CHAIRMAN KONSOER: Section 35 is now proposed as follows:

SEC. 35. FLUID DAIRY PRODUCTS.—All fluid dairy products, including but not limited to whole milk, skimmed milk, cultured milk, sweet cream, sour cream, and buttermilk, shall be packaged for retail sale only in units of 1 gill, ½ liquid pint, 10 fluid ounces, 1 liquid pint, 1 liquid quart, ½ gallon, 1 gallon, 1½ gallons, 2 gallons, 2½ gallons, or multiples of 1 gallon: *Provided,* That packages in units of less than 1 gill shall be permitted.

(Section 35, as further amended, was adopted by voice vote.)

SEC. 36. FLOUR, CORN MEAL, AND HOMINY GRITS.—The Committee has been aware that the smallest prescribed unit listed in this section (3 pounds) actually is no longer produced, while a two-pound size is standard. Accordingly, *the Committee recommends that Section 36 of the Model Law be amended to read as follows:*

SEC. 36. FLOUR, CORN MEAL, AND HOMINY GRITS.—When in package form, and when packed, kept, offered, or exposed for sale or sold, wheat flour, whole wheat flour, graham flour, self-rising wheat flour, phosphated wheat flour, bromated flour, enriched flour, enriched self-rising flour, enriched bromated flour, corn flour, corn meal, and hominy grits shall be packaged only in units of 2, 5, 10, 25, 50, or 100 pounds, avoirdupois weight: *Provided,* That packages in units of less than 2 pounds or more than 100 pounds shall be permitted.

(Section 36, as amended, was adopted unanimously by voice vote.)

SEC. 37. COAL, COKE, AND CHARCOAL.—The Southern Weights and Measures Association has urged the Committee to extend and expand the coverage of this section to all bulk commodities delivered by vehicle, since coal, coke, and charcoal represent only a small proportion of such bulk vehicle deliveries. *The Committee* is in agreement with this recommendation and, accordingly, *recommends that Section 37 of the Model Law be amended to read:*

SEC. 37. BULK DELIVERIES SOLD IN TERMS OF WEIGHT AND DELIVERED BY VEHICLE.—When a vehicle delivers to an individual purchaser a commodity in bulk, and the commodity

is sold in terms of weight units, the delivery shall be accompanied by a duplicate delivery ticket with the following information clearly stated, in ink or other indelible marking equipment and, in clarity, equal to type or printing: (1) The name and address of the vendor, (2) the name and address of the purchaser, and (3) the net weight of the delivery expressed in pounds, and, if the net weight is derived from determination of gross and tare weights, such gross and tare weights also shall be stated in terms of pounds. One of these tickets shall be retained by the vendor, and the other shall be delivered to the purchaser at the time of delivery of the commodity, or shall be surrendered, on demand, to the director, or the deputy director or the inspector, or the sealer or deputy sealer, who, if he desires to retain it as evidence, shall issue a weight slip in lieu thereof for delivery to the purchaser: *Provided,* That, if the purchaser, himself, carries away his purchase, the vendor shall be required only to give to the purchaser at the time of sale a delivery ticket stating the number of pounds of commodity delivered to him.

(Section 37, as amended, was adopted unanimously by voice vote.)

SEC. 39. TEXTILE PRODUCTS.—Becuase a number of the requirements in this section, which specifies the method of sale of textile products in package form, are in conflict with the new requirements under the Fair Packaging and Labeling Act, and because all textile products in package form are now covered by the regulation issued by the Federal Trade Commission (and the Model Package Regulation proposed in this Report), the Committee recommends the deletion of Section 39 of the Model Law and the appropriate renumbering of all succeeding sections.

(The deletion of Section 39 from the Model Law was approved unanimously by voice vote.)

2. MODEL REGULATION FOR PEAT AND PEAT MOSS

The Committee now recommends adoption of a Model Regulation for Peat and Peat Moss.

MODEL STATE REGULATION FOR PEAT AND PEAT MOSS

Pursuant to the authority vested in me as set forth in Section _____ of Chapter _____ of the _____ statutes of the State of _____ [cite sections authorizing promulgation of general regulation and special commodity sections], I, _____, State Director

of Weights and Measures, hereby adopt and promulgate the following regulation:

1. *APPLICATION.*—This regulation shall apply to packages of "peat" and "peat moss," which terms shall be used only with respect to organic matter of geological origin, excluding coal and lignite, originating principally from dead vegetative remains through the agency of water in the absence of air and occurring in a bog, swampland, or marsh, and containing an ash content not exceeding 25 percent on a dry-weight basis (dried in an oven at 105° C. (221° F.) until no further weight loss can be determined).

2. *DECLARATION OF IDENTITY.*—The declaration of identity shall positively identify the commodity in the package as peat or peat moss.

3. *DECLARATION OF QUANTITY.*—The declaration of quantity shall disclose the net quantity of the commodity; that is, the quantity in the package exclusive of wrappers and any other material packaged with such commodity.

4. *TERMS: WEIGHT OR CUBIC MEASURE.*—The declaration of quantity of peat and peat moss shall be expressed in weight units or in cubic-measure units.

4.1. *WEIGHT UNITS.*—Effective January 1, 1969, peat and peat moss sold in terms of weight shall be offered and exposed for sale only in units of 100 pounds, 70 pounds, 50 pounds, 25 pounds, 10 pounds, or 3 pounds.

4.2. *CUBIC-MEASURE UNITS.*—Effective January 1, 1969, peat and peat moss sold in terms of cubic measure shall be offered and exposed for sale only in units of 6, 5.5, 4, 2, 1, 0.7, 0.5, 0.3, or 0.2 cubic feet. If the commodity is labeled in terms of compressed cubic measurement, the quantity declaration shall represent the quantity in the compressed state and the quantity from which the final product was compressed (the latter declaration not exceeding the actual amount of material that can be recovered).

5. This regulation shall supersede any and all regulations pertaining to the method of sale of peat and peat moss and packages of peat and peat moss.

EFFECTIVE DATE

This regulation shall become effective on _____.

Given under my hand and the seal of my office in the City of _____, _____, on this _____ _____ day of _____ _____, A.D. 19____.

Signed_____

It has become obvious throughout this Conference, as discussion has occurred on this subject, that the views of the industry are so diverse that the Committee and the Conference must act only on information available to it and cannot act in response to a unified industry position. The recommendation made here with respect to mandatory quantities includes both the 5.5 and 6 cubic feet quantities—the principal point of controversy among industry spokesmen. The Committee desires to place the industry on notice that unless it can come to the Committee Secretary by January 15, 1969, with its recommendation between these two quantities, this Committee will be forced to make a selection without further counsel from representatives of producers.

DISCUSSION ON ITEM 2

Mr. Copeland, Indiana: I would like to ask this Conference how I, or how any weights and measures official, can test these various sizes in the field on the basis of cubic content.

Mr. Kerlin: Mr. Copeland, I think this is a case where, as is true with other commodities, a test procedure must be worked out by the Office of Weights and Measures.

There are, of course, some commodities that are simply not amenable to field testing. This is true, for instance, in the case of aerosols, where quantity checking should be done in the laboratory.

(The Model Regulation for Peat and Peat Moss was adopted by voice vote.)

3. METHOD OF SALE OF CALKING COMPOUND, GLAZING COMPOUND, AND PUTTY

In its report to the 52d National Conference, the Committee recommended the adoption of a statement that represented an interpretation of the Model Package Regulation. This interpretation would require that calking compound, glazing compound, and putty be sold in terms of weight units. The Committee continued its consideration of this matter following the Conference, studied a carefully prepared brief submitted by the National Paint, Varnish and Lacquer Association, and heard oral presentations by industry representatives during the interim meeting. It now becomes quite clear that there exists no panacea for the problem of consumer understanding of these commodities. The Committee is informed, for example, that, in almost every case, the lighter the sealant the higher the quality and the higher the price. There does not even seem to be sufficient consumer information on quality levels for particular applications for purposes of sound consumer market judgment.

The Committee is convinced that if packages of calking compound, glazing compound, and putty are required to be labeled in terms of

weight, one tendency will be to lead consumers to believe that the heavier the weight the higher the quality. This, as stated above, is quite the opposite from the actual situation.

In order to remove this one possible source of consumer confusion and to facilitate the standardization of packages of these commodities, *the Committee now recommends that calking compound, glazing compound, and putty be sold in terms of units of liquid measure and that packages of such commodities be labeled in terms of liquid measure.*

The Committee has been assured by industry representatives that the industry will now move forward with the development, promotion, and use of a modern voluntary standard, under the Procedures of the U.S. Department of Commerce. The standard will include specific quantities for the various packages; with good distribution between quantities. The Committee is assured further that the present nonstandard cartridges of these sealants will also be standardized with respect to liquid measure and that the industry will undertake a broad consumer educational program so that consumers may indeed be sufficiently knowledgeable to exercise purchase judgment.

(After considerable discussion which evidenced no unanimity of thought among those who wished sale of the subject products by weight and those who preferred other methods, Mr. Greenspan of New York City moved that the matter be referred back to the Committee on Laws and Regulations for further study. The motion was seconded and adopted by voice vote.)

4. LIQUID FERTILIZERS

The subject of the metering of liquid fertilizers has received some attention in past Conferences. The Office of Weights and Measures, National Bureau of Standards, in responding to a request of the Conference, has developed and had fabricated a special device for proving liquid meters in liquid fertilizer service. The Committee has received information to the effect that the dispensing of liquid fertilizers through meters is on the definite increase, yet there remain many State statutory requirements stipulating that all fertilizers be sold on the weight basis.

The practice of measuring liquids through approved liquid metering systems is to be promoted and supported. The practice of converting liquid units into weight units must be discouraged because of the gross inaccuracies that become possible through using arbitrary conversion factors.

The Committee urges State weights and measures officials to study their statutes and, where necessary, to provide leadership in bringing about amendments that will permit the sale of liquid fertilizers in terms of units of liquid measure.

(The foregoing item was adopted unanimously by voice vote.)

Perhaps nothing has faced the National Conference on Weights and Measures during recent years that is as controversial or that affects the basic philosophy of weights and measures supervision by the States and their political subdivisions that is equivalent to the Fair Packaging and Labeling Act, the regulations issued pursuant thereto, and enforcement of the statute and its regulations. There are those who take the position that Section 12 of the Act (quoted in the Tentative Report) totally preempts the authority of States, counties, and cities who differ in any way in their requirements from the requirements issued by the Federal agencies. There are those who take almost an equally strong position in the other direction. The facts are that Congress seems obviously to have intended that the Federal Government provide the foundation for comprehensive package labeling requirements and that the States, under their universally acknowledged police powers, cannot require less, nor can they institute a requirement that would create, through compliance with it, violation of Federal requirements.

The Committee has received strong and well-developed recommendations from the Industry Committee on Packaging and Labeling, which has provided superb cooperation through recent years, and from others that the Conference select either one of two courses: (1) the adoption of a "tentative" regulation or (2) the inclusion in a "final" regulation of a clause that would automatically adopt exemptions issued by either of the Federal regulatory agencies. In support of its position, the industry committee pointed out the obvious fact that the Federal regulations currently are fluid and that the Model Regulation should remain sufficiently flexible as to respond to changes in the Federal regulation as these are developed.

It is the conviction of the Conference Committee on Laws and Regulations that it cannot avoid the fact that the enactment of the Fair Packaging and Labeling Act with its clearly worded Section 12 has, in effect, made obsolete the package marking regulation of every State in the Union. The Committee cannot shirk its responsibility to this Conference and to the States, counties, and cities represented here—the responsibility of recommending a package regulation.

In its Organization and Procedure, the National Conference assigns to its Executive Committee the responsibility of acting "for the Conference in all routine or emergency situations that may arise." The proposed regulations, proposed amendments, and proposed exemptions can be transmitted by the Committee Secretary to the members of the Committee on Laws and Regulations; a Committee consensus can be developed and recommended to the Conference Executive Committee. The Executive Committee then can respond in the name of the Conference without delay, and the Executive Secretary can inform all

States of an Executive Committee recommendation. Thus, in recommending for Conference adoption the Model State Packaging and Labeling Regulation of 1968, the Committee assures the Conference of its intention to avoid any untoward delays in developing Conference action in this critical area.

The Committee recommends the adoption of the following Model State Packaging and Labeling Regulation of 1968:

MODEL STATE PACKAGING AND LABELING REGULATION OF 1968

1. *APPLICATION.*—This regulation shall apply to commodities in package form except those

(a) in inner wrappings not intended to be individually sold to the consumer,

(b) in auxiliary containers not intended to be sold to the consumer intact, bearing no printed matter pertaining to any commodity, and enclosing packages that are individually marked in conformance with the requirements of this regulation,

(c) in containers used for retail tray pack displays when the container is not intended to be sold, or

(d) commodities put up in variable weights or sizes for sale intact and intended to be either weighed or measured at the time of sale.

2. *DEFINITIONS.*

2.1. *COMMODITY IN PACKAGE FORM.*—The term "commodity in package form" shall be construed to mean a commodity put up or packaged in any manner in advance of sale in units suitable for either wholesale or retail sale. An individual item or lot of any commodity not in package form as defined in this section, but on which there is marked a selling price based on an established price per unit of weight or of measure, shall be construed to be a commodity in package form.

2.2. *CONSUMER PACKAGE; PACKAGE OF CONSUMER COMMODITY.*—A "consumer package" or "package of consumer commodity" shall be construed to mean a commodity in package form that is customarily produced or distributed for sale through retail sales agencies or instrumentalities for consumption by individuals, or use by individuals for the purposes of personal care or in the performance of services ordinarily rendered in or about the household or in connection with personal possessions.

2.3. *NONCONSUMER PACKAGE; PACKAGE OF NONCONSUMER COMMODITY.*—A "nonconsumer package" or "package of nonconsumer commodity" shall be construed to mean any commodity in package form other than a consumer package, and particu-

larly a package intended solely for industrial or institutional use or for wholesale distribution only.

2.4. *PACKAGE.*—The term "package" shall be construed to mean any container or wrapper in which any commodity is enclosed for use in the delivery or display for sale of that commodity, but does not include shipping containers or wrappings used solely for the transportation of any such commodity in bulk or in quantity to manufacturers, processors, or distributors.

2.5. *RANDOM PACKAGE.*—The term "random package" shall be construed to mean a package that is one of a *lot*, shipment, or delivery of packages of the same consumer commodity with varying weights or measures, that is, packages of the same consumer commodity with no fixed pattern of weight or measure: *Provided, That for purposes of this regulation, any package upon which is stated on the principal display panel, in addition to the required quantity declaration, the price per unit of weight, measure, or count, and the total price of the package, should be deemed to be a "random package."*

2.6. *LABEL.*—The term "label" shall be construed to mean any written, printed, or graphic matter affixed to, applied to, attached to, blown into, formed, molded into, embossed on, or appearing upon or adjacent to a consumer commodity or a package containing any consumer commodity, for purposes of branding, identifying, or giving any information with respect to the commodity or to the contents of the package.

2.7. *PERSON.*—The term "person" shall be construed to mean both singular and plural, and shall include any individual, partnership, firm, company, corporation, association, and society.

2.8. *PRINCIPAL DISPLAY PANEL OR PANELS.*—The term "principal display panel or panels" shall be construed to mean that part, or those parts, of a label that is, or are, so designed as to most likely be displayed, presented, shown, or examined under normal and customary conditions of display and purchase. Wherever a principal display panel appears more than once on a package, all requirements pertaining to the "principal display panel" shall pertain to all such "principal display panels."

3. *DECLARATION OF IDENTITY.*—A declaration of identity shall appear on the principal display panel and shall positively identify the commodity in the package by its common or usual name, description, generic term, or the like.

4. *DECLARATION OF RESPONSIBILITY.*—Any package kept, offered, or exposed for sale, or sold, at any place other than on the premises where packed shall specify conspicuously on the label of the package the name and address of the manufacturer, packer, or distributor. The name shall be the actual corporate name, or, when not incorporated, the name under which the business is conducted. The ad-

dress shall include street address, city, state, and ZIP Code; however, the street address may be omitted if this is shown in a current city directory or telephone directory. The requirement for inclusion of the ZIP Code shall apply only to labels that have been developed or revised after July 1, 1968.

If a person manufactures, packs, or distributes a commodity at a place other than his principal place of business, the label may state the principal place of business in lieu of the actual place where the commodity was manufactured or packed or is to be distributed, unless such statement would be misleading. Where the commodity is not manufactured by the person whose name appears on the label, the name shall be qualified by a phrase that reveals the connection such person has with such commodity, such as "Manufactured for and packed by _____," "Distributed by _____," or any other wording of similar import that expresses the facts.

5. *DECLARATION OF QUANTITY.*

5.1. *LARGEST WHOLE UNIT.*—Where this regulation requires that the quantity declaration be in terms of the largest whole unit, the declaration shall, with respect to a particular package, be in terms of the largest whole unit of weight or measure, with any remainder expressed in

(a) common or decimal fractions of such largest whole unit, or in

(b) the next smaller whole unit, or units, with any further remainder in terms of common or decimal fractions of the smallest unit present in the quantity declaration.

5.2. *NET QUANTITY.*—The principal display panel of a package shall bear a declaration of the net quantity of the commodity in the package exclusive of wrappers and any other material packed with such commodity: *Provided*, That the declaration of quantity on an aerosol package shall disclose the net quantity of the commodity (including propellant) that will be expelled when the instructions for use as shown on the container are followed: *And provided further*, That the term "net weight" shall be used when stating the net quantity of contents in terms of weight: *And provided further*, That a quantity declaration may appear on more than one line of print or type.

5.3. *TERMS—WEIGHT, LIQUID MEASURE, OR COUNT.*—The declaration of the quantity of a particular commodity shall be expressed in such terms of weight, measure, or count, or a combination of count and weight, measure, or size, as have been firmly established in general consumer usage and trade custom and as gives accurate and adequate information as to the quantity of the commodity: *Provided*, That if there exists no firmly established general consumer usage and trade custom with respect to the terms used in expressing such declaration of quantity, the declaration shall be in terms of liquid measure if

the commodity is liquid, or in terms of weight if the commodity is solid, semisolid, viscous, or a mixture of solid and liquid: *And provided further*, That if the commodity is packaged in an aerosol container, the declaration shall be in terms of weight (including the propellant).

5.3.1. *COMBINATION DECLARATION; WEIGHT OR MEASURE.*—A declaration of quantity in terms of weight or measure shall be supplemented by a declaration of the count or size of the individual units of the commodity, unless a declaration of weight or measure alone is fully informative to the consumer.

5.3.2. *COMBINATION DECLARATION; COUNT.*—A declaration of quantity in terms of count shall be supplemented by a declaration of the weight, measure, or size of the individual units of the commodity, or of the total weight or measure of the commodity, unless a declaration of count alone is fully informative to the consumer.

5.3.3. *MULTI-UNIT PACKAGES.*—Any package containing more than one individually packaged unit of the same commodity shall bear on the outside of the package a declaration of

(a) the number of individual units,

(b) the quantity of each individual unit, and

(c) the total quantity of the contents of the multi-unit package: *Provided*, That the requirement for a declaration of the total quantity of contents of a multi-unit package shall be effective (1) with respect to those labels revised after the effective date of this regulation, or (2) as of January 1, 1970, whichever occurs first.

DISCUSSION ON SECTION 5.3.3.

MR. BAKER: Mr. Chairman, my name is Tom Baker of the National Soft Drink Association. We took the position initially that we were opposed to 5.3.3. I think we are still opposed to 5.3.3.

However, we have said in discussions with the Committee Chairman and Mr. Jensen that if we were to be given sufficient lead time, we felt we could come into compliance with 5.3.3.

The fact that we can comply does not change our basic objection to this: we much prefer that all of these areas be ironed out between the different agencies before you come to this position. But if that is not practical or possible, then with sufficient lead time, we believe we can live with it.

MR. MOSS: Mr. Chairman, I am Tom Moss of the Gerber Product Company. We are a manufacturer of infant formulas. I have here a label for nursing bottles filled with formula which indicates the container would have within it 11 nursing bottles of 4 fluid ounces each.

Although we do not think there is really a need that the mother know that the 11 nursing bottles of 4 ounces each have a total of 44 ounces in them, your January 1, 1970, provision giving us additional time to comply, certainly goes in the right direction.

MR. SPEER: Gentlemen, my name is Mr. John Speer of the Intl. Assn. of Ice Cream Mfrs. I would like to put on my popsicle hat for a minute. Each year are sold approximately 12 to 15 million gallons of ice cream and related products in the form of novelties. Historically, our industry has sold these on a count-quantity basis, for example: "eight 3½ ounce ice cream sandwiches"—without the inclusion of a total quantity statement.

The reason that we feel that a total quantity statement is not required is that the molds used in manufacturing these items are standardized, and have been standardized on the basis of a long ago agreement with this Conference. It is our feeling that through this standardization, price comparison is facilitated.

5.3.4. *COMBINATION OR VARIETY PACKAGES.*—Any package containing individual units of dissimilar commodities shall bear on the label of the package a quantity declaration for each unit: *Provided*, That a combination package that traditionally has been sold as an individual unit or that contains a commodity that, as enclosed in the package, has been so mixed or joined as to form a single commodity of distinguishable individual identity, shall be exempt from the requirements of this subsection (5.3.4), and may be labeled in terms of the net quantity of the entire package.

5.4. *UNITS—WEIGHT, MEASURE.*—A declaration of quantity

(a) in units of weight shall be in terms of the avoirdupois pound or ounce;

(b) in units of liquid measure shall be in terms of the United States gallon of 231 cubic inches or liquid-quart, liquid-pint, or fluid-ounce subdivisions of the gallon, and shall express the volume at 68° F. (20° C.), except in the case of petroleum products, for which the declaration shall express the volume at 60° F. (15.6° C.), and except also in the case of a commodity that is normally sold and consumed while frozen, for which the declaration shall express the volume at the frozen temperature, and except also in the case of a commodity that is normally sold in the refrigerated state, for which the declaration shall express the volume at 40° F. (4° C.);

(c) in units of linear measure shall be in terms of the yard, foot, or inch;

(d) in units of area measure, shall be in terms of the square yard, square foot, or square inch;

(e) in units of dry measure shall be in terms of the United States bushel of 2,150.42 cubic inches, or peck, dry-quart, and dry-pint subdivisions of the bushel;

(f) in units of cubic measure shall be in terms of the cubic yard, cubic foot, or cubic inch:

Provided, That in the case of drugs, in lieu of any requirement to the contrary, the declaration of quantity may be in terms of a unit of the metric system of weight or measure: *And provided further*, That in the case of a commodity packed for export shipment, the declaration of quantity may be in terms of a system of weight or measure in common use in the country to which such shipment is to be exported.

5.4.1. *ABBREVIATIONS.*—Any of the following abbreviations, and none other, may be employed in the quantity statement on a commodity or package of commodity:

avoirdupois	avdp	quart	qt
cubic	cu	square	sq
feet or foot	ft	weight	wt
fluid	fl	yard	yd
gallon	gal	cubic centimeter	cc
inch	in	gram	g
liquid	liq	kilogram	kg
ounce	oz	microgram	mcg
pint	pt	milligram	mg or mgm
pound	lb	milliliter	ml

(There normally are no periods following, nor plural forms of, these abbreviations. For example, the abbreviation is "oz" for both "ounce" and "ounces.")

5.5 *UNITS WITH TWO OR MORE MEANINGS.*—When the term "ounce" is employed in a declaration of liquid quantity, the declaration shall identify the particular meaning of the term by the use of the term "fluid"; however, such distinction may be omitted when, by association of terms (for example, as in "1 pint 4 ounces"), the proper meaning is obvious. Whenever the declaration of quantity is in terms of the dry pint or dry quart, the declaration shall include the word "dry."

5.6 *PRESCRIBED UNITS.*

5.6.1. *LESS THAN ONE FOOT, ONE SQUARE FOOT, ONE POUND, OR ONE PINT.*—The declaration of quantity shall be expressed in terms of

(a) in the case of length measure of less than one foot, inches and fractions of inches;

(b) in the case of area measure of less than one square foot, square inches and fractions of square inches;

(c) in the case of weight or fluid measure of less than one pound or one pint, ounces and fractions of ounces:

Provided, That the quantity declaration appearing on a random package may be expressed in terms of decimal fractions of the largest appropriate unit, the fraction being carried out to not more than two decimal places.

5.6.2. *FOUR FEET, FOUR SQUARE FEET, FOUR POUNDS, ONE GALLON, OR MORE.*—In the case of

(a) length measure of four feet or more,

(b) area measure of four square feet or more, and

(c) weight or fluid measure of four pounds or more, or one gallon or more,

the declaration of quantity shall be expressed in terms of the largest whole unit.

5.6.3. *WEIGHT OR FLUID MEASURE; DUAL QUANTITY DECLARATION.*—On packages containing one pound or more but less than four pounds, or one pint or more but less than one gallon, the declaration shall be expressed in ounces and, in addition, shall be followed by a declaration, presented in parentheses, in terms of the largest whole unit: *Provided*, That the quantity declaration appearing on a random package may be expressed in terms of pounds and decimal fractions of the pound carried out to not more than two decimal places.

5.6.4. *LENGTH MEASURE; DUAL QUANTITY DECLARATION.*—On packages containing one foot or more but less than four feet, the declaration shall be expressed in inches and, in addition, shall be followed in parentheses by a declaration expressed in terms of the largest whole unit: *Provided*, That the quantity declaration appearing on a random package may be expressed in terms of feet and decimal fractions of the foot carried out to not more than two decimal places.

5.6.5. *AREA MEASURE; DUAL QUANTITY DECLARATION.*—On packages containing one square foot or more but less than four square feet, the declaration shall be expressed in square inches and, in addition, shall be followed in parentheses by a declaration expressed in terms of the largest whole unit: *Provided*, That the quantity declaration appearing on a random package may be expressed in terms of square feet and decimal fractions of the square foot carried out to not more than two decimal places.

5.6.6. *BIDIMENSIONAL COMMODITIES.*—For bidimensional commodities (including roll-type commodities) the quantity declaration shall be expressed,

(a) if less than one square foot, in terms of linear inches and fractions of linear inches;

(b) if at least one square foot but less than four square feet, in terms of square inches followed in parentheses by a declaration of both the length and width, each being in terms of the largest whole unit: *Provided*, *That*

(1) no square inch declaration is required for a bidimensional commodity of four inches width or less, and

(2) a dimension of less than two feet may be stated in inches within the parenthetical, and

(3) commodities consisting of usable individual units (except roll-type commodities with individual usable units created by perforations, for which see Section 5.6.7. COUNT; PLY) require a declaration of unit area but not a declaration of total area of all such units;

(c) if four square feet or more, in terms of square feet followed in parentheses by a declaration of the length and width in terms of the largest whole units: *Provided*, That

(1) no declaration in square feet is required for a bidimensional commodity with a width of four inches or less,

(2) a dimension of less than two feet may be stated in inches within the parenthetical, and

(3) no declaration in square feet is required for commodities for which the length and width measurements are critical in terms of end use (such as tablecloths or bedsheets) if such commodities clearly present the length and width measurements on the label.

5.6.7. *COUNT; PLY.*—If the commodity is in individually usable units of one or more components or ply, the quantity declaration shall, in addition to complying with other applicable quantity declaration requirements of this regulation, include the number of ply and the total number of usable units.

Roll-type commodities, when perforated so as to identify individual usable units, shall not be deemed to be made up of usable units; however, such roll-type commodities shall be labeled in terms of

(a) total areas measurement and

(b) number of ply,

(c) count of usable units, and

(d) dimensions of a single usable unit.

5.7. *REDUCTION OF FRACTIONS.*—Fractions employed in declarations of quantity may be either common fractions or decimal fractions. A common fraction shall be in terms of halves, quarters, eighths, sixteenths, or thirty-seconds, and shall be reduced to its lowest terms. A decimal fraction shall not be carried out to more than two places: *Provided*, That if there exists, with respect to a particular commodity, a firmly established general consumer usage and trade custom contrary to the requirement pertaining to common fractions, as set forth above, for the reduction of a common fraction to its lowest terms, the declaration may be made in accordance with such usage and custom: *And provided further*, That in the case of drugs, a decimal fraction may be carried out to three places.

5.8. *SUPPLEMENTARY DECLARATIONS.*

5.8.1. *SUPPLEMENTARY QUANTITY DECLARATIONS.*—The required quantity declaration may be supplemented by one or more declarations of weight, measure, or count; *Provided*, That any such supplementary declaration shall be accurate; shall be neither in larger size type nor more prominently displayed than the required quantity declaration; shall not be so located as to detract from, or confuse or mislead as to the precise meaning of the required quantity declaration and any such supplementary statement shall appear at a location other than on the principal display panel: *And provided further*, That a declaration of quantity as set forth in Section 5.3.1. COMBINATION DECLARATION; WEIGHT OR MEASURE and Section 5.3.2. COMBINATION DECLARATION; COUNT is not regarded as a supplementary statement: *And provided further*, That when additional quantity information is deemed to be of vital concern to the consumer (such as, for example, the number of slices in a package of sliced cheese, dilution directions of a concentrate), such information may appear on the principal display panel but not in larger size type than the required quantity declaration.

5.8.2. *METRIC SYSTEM DECLARATIONS.*—A separate statement of the net quantity of contents in terms of the metric system is not regarded as a supplemental statement, and a statement of quantity in terms of the metric system of weight or measure may also appear on the principal display panel or on other panels.

5.9. *CHARACTER OF DECLARATION; AVERAGE.*—The average quantity of contents in the packages of a particular lot, shipment, or delivery shall at least equal the declared quantity.

5.10. *QUALIFICATION OF DECLARATION PROHIBITED.*—In no case shall any declaration of quantity be qualified by the addition of the words "when packed," "minimum" or "not less than," or any words of similar import, nor shall any unit of weight, measure, or count be qualified by any term (such as "jumbo," "giant," "full," or the like) that tends to exaggerate the amount of commodity.

6. *PROMINENCE AND PLACEMENT.*

6.1. *GENERAL.*—All information required to appear on a package shall be prominent, definite, and plain, and shall be conspicuous as to size and style of letters and numbers and as to color of letters and numbers in contrast to color of background. Any required information that is either in hand lettering or hand script shall be entirely clear and equal to printing in legibility. All information required to appear on a package shall also appear on any outside container or wrapper that is used, unless such container or wrapper is transparent and the information on the package is easily legible through such outside container or wrapper (except see Section 1. APPLICATION).

6.1.1. *LOCATION.*—The declaration or declarations of quantity of

the contents of a package shall appear in the bottom 30 percent of the principal display panel, or panels if there is more than one, and shall be presented in such a manner as to be generally parallel to the base on which the package rests as it is designed to be displayed: *Provided*, That on

(a) a principal display panel of five square inches or less, or on

(b) individual units (not intended to be sold separately) of a multi-unit retail package,

the declaration of quantity need not appear in the bottom 30 percent of the principal display panel if that declaration satisfies the other requirements of this regulation: *And provided further*, That in the case of cylindrical containers, the required declarations of identity and of quality shall appear within that 40 percent of the circumference which is most likely to be displayed, presented, shown, or examined under customary conditions of sale: *And provided further*, That the principal display panel of a cosmetic marketed in a "boudoir-type" container including decorative cosmetic containers of the "cartridge," "pill box," "compact," or "pencil" variety, and those with a capacity of one-fourth ounce or less, may be a tear-away tag or tape affixed to the decorative container and bearing the mandatory label information as required by this regulation.

6.1.2. *STYLE OF TYPE OR LETTERING.*—The declaration or declarations of quantity shall be in such a style of type or lettering as to be boldly, clearly, and conspicuously presented with respect to other type, lettering, or graphic material on the package, except that a declaration of net quantity blown, formed, or molded on a glass or plastic surface is permissible when all label information is blown, formed, or molded on the surface.

6.1.3 *COLOR CONTRAST.*—The declaration or declarations of quantity shall be in a color that contrasts conspicuously with its background, except that a declaration of net quantity blown, formed, or molded on a glass or plastic surface shall not be required to be presented in a contrasting color if no required label information is on the surface in a contrasting color.

6.1.4. *FREE AREA.*—The area surrounding the quantity declaration shall be free of printed information

(a) above and below, by a space equal to at least the height of the lettering in the declaration, and

(b) to the left and right, by a space equal to twice the width of the letter "N" of the style and size of type used in the declaration.

6.2 *CALCULATION OF AREA OF PRINCIPAL DISPLAY PANEL OR PANELS FOR PURPOSES OF TYPE SIZE.*—The square-inch area of the principal display panel shall be

(a) in the case of a rectangular container, one or more entire side or sides of which properly can be considered to be the principal

display panel or panels, the product of the height times the width of that side or those sides;

(b) in the case of a cylindrical or nearly cylindrical container, 40 percent of the product of the height of the container times the circumference; or

(c) in the case of any other shaped container, 40 percent of the total surface of the container, unless such container presents an obvious principal display panel (e.g., the top of a triangular or circular package of cheese, or the top of a can of shoe polish), the area shall consist of the entire such surface: *Provided*, That determination of the principal display panel shall exclude tops, bottoms, flanges at tops and bottoms of cans, and shoulders and necks of bottles or jars: *And provided further*, That for an individual package affixed to a display card, or for a commodity and display card together comprising a package, the type size of the quantity declaration is governed by the dimensions of the display card.

6.2.1. *MINIMUM HEIGHT OF NUMBERS AND LETTERS.*—The height of any letter or number in the required quantity declaration shall be not less than that shown in Table 1 with respect to the square-inch area of the panel: *Provided*, That the height of each number of a common fraction shall meet one-half the minimum height standards: *And provided further*, That no number or letter shall be more than three times as high as it is wide.

TABLE 1.—*Minimum Height of Numbers and Letters*

Square-inch area of principal display panel	Minimum height of numbers and letters	Minimum height: label information blown, formed, or molded into surface of container
	Inch	*Inch*
5 square inches and less	1/16	1/8
Greater than 5 square inches and not greater than 25 square inches	1/8	3/16
Greater than 25 square inches and not greater than 100 square inches	3/16	1/4
Greater than 100 square inches and not greater than 400 square inches	1/4	5/16
Greater than 400 square inches	1/2	9/16

7. *EXEMPTIONS.*

7.1. *NONCONSUMER PACKAGES.*—Nonconsumer packages are exempt from the requirements in this regulation for prominence and placement, dual quantity declaration, and type size.

MR. BENNETT (Connecticut): I would like to move that we amend Section 7 to include an additional exemption. I will read my proposed amendment.

"Consumer packages are exempt from the requirements of this regulation that have been granted exemptions, under the Fair Packaging and Labeling Act, by those Federal agencies authorized to grant exemptions."

This language may be inadequate or inaccurate—I leave it to the Committee's discretion—what I am trying to say is that our final Model Package Regulation should contain a clause which would automatically recognize exemptions issued by Federal agencies.

I agree with the Committee's position, that we should have final regulations; regulations which we want to adopt in Connecticut. But we do not want to be troubled with exemptions coming up all of the time.

We feel that States should automatically accept exemptions granted by the Food and Drug Administration and the Federal Trade Commission.

MR. DUNKLEBERGER: Mr. Chairman, my name is Ed Dunkleberger, Counsel for the National Can Association.

You have heard industry's position regarding automatic adoption of exemptions, in some detail, both at Monday's Open Meeting and again today. Our general feeling is, if this automatic adoption approach can be taken, at least it would put the National Conference on record for saying it believes in uniformity with respect to exemptions, and if there are some States that have a statutory problem in this regard, then those States can adopt Federal exemptions singularly as they come up.

We would hope that the Conference would feel that the ideal step would be to have Federal exemptions adopted in an automatic manner in those States where such a thing is permissible.

MR. KERLIN: Gentlemen, believe me, the Committee has considered this long and hard. We discussed it at great length only yesterday. I would just like to point out one thing. By using the procedure that we have described in the preface to this Model Regulation, we will be doing much the same thing as we have been doing for many many, years in regard to Handbook 44. The procedure is not new; we are simply using a tried and true procedure for a new purpose.

MR. JENSEN: As many State officials here are aware any State can, and many States do, include in their statutes provisions for automatic adoption of H44 modifications and revisions as they are proposed by the National Bureau of Standards. If any State is concerned about the time consumed by administrative action, legal review, or public hear-

ings, such a clause could easily be included in the statute or in a regulation, adopting by citation. This would mean that no further administrative procedures, beyond the original promulgation, would be necessary and, most importantly, the control of these matters would remain in State hands and not in the hands of Federal agencies.

Mr. Offner (St Louis): While a few of these States have an extremely cumbersome procedure to go through, this is not true in most States, and I think that most States can live with just exactly what the Committee proposed. I would suggest, therefore, that the Conference might adopt the proposal of the Committee and then let those States that have a difficult procedure work it out as will suit their own situation.

Mr. Bennett: Our General Assembly in Connecticut gave us this prerogative in our statute, adopting by citation, when they passed enabling legislation for us to adopt Handbook 44.

I would like to see it set up that way for the Model Package Regulation, but it would be difficult, I think, to get it through the General Assembly in Connecticut.

Mr. Jensen: I suspect that half of the States in the Union have adopted H44 amendments, supplements, and revisions through administrative action. It obviously can be done because it already has been done.

(At this point a standing vote was called for by the Chairman, and the proposed amendment to automatically adopt Federal exemptions was defeated.)

7.2. *RANDOM PACKAGES.*—A random package bearing a label conspicuously declaring

(1) the net weight, measure, or count;

(2) the price per pound, per unit of measure, or per count; and

(3) the total price

shall be exempt from the type size, dual declaration, placement and free area requirements of this regulation. In the case of a random package of food packed at one place for subsequent sale at another, neither the price per unit of weight, measure, or count, nor the total selling price need appear on the package provided the package label includes both such prices at the time it is offered or exposed for sale at retail. If a random package is labeled with the total selling price, it must also be labeled in terms of the price per unit of weight, measure, or count.

7.3. "*PENNY CANDY.*"—When individually wrapped pieces of "penny candy" or individually wrapped pieces of candy of less than ½ ounce net weight are shipped or delivered in containers that conform to the labeling requirements of this regulation, such individual pieces shall be exempt from such labeling requirements.

7.4. *INDIVIDUAL SERVINGS.*—Individual-serving-size packages of foods containing less than ½ ounce or less than ½ fluid ounce for use in restaurants, institutions, and passenger carriers, and not intended for sale at retail, shall be exempt from the required declaration of net quantity of contents specified in this regulation.

7.5. *CUTS, PLUGS, AND TWISTS OF TOBACCO AND CIGARS.*—When individual cuts, plugs, and twists of tobacco and individual cigars are shipped or delivered in containers that conform to the labeling requirements of this regulation, such individual cuts, plugs, and twists of tobacco and cigars shall be exempt from such labeling requirements.

7.6. *REUSABLE (RETURNABLE) GLASS CONTAINERS.*—Nothing in this regulation shall be deemed to preclude the continued use of reusable (returnable) glass containers: *Provided*, That such glass containers ordered after the effective date of this regulation shall conform to all requirements of this regulation.

7.7. *CONTAINERS STANDARDIZED BY DEVICE REGULATION.*—Containers such as milk bottles, lubricating-oil bottles, and measure-containers, for which standards are established and specifications are set forth in National Bureau of Standards Handbook 44, *Specifications, Tolerances, and Other Technical Requirements for Commercial Weighing and Measuring Devices*, shall be exempt from the requirements as set forth in Section 6 of this regulation.

7.8. *PACKAGED COMMODITIES WITH LABELING REQUIREMENTS SPECIFIED IN FEDERAL LAW.*—Packages of meat and meat products, poultry and poultry products, tobacco and tobacco products, insecticides, fungicides, rodenticides, prescription drugs, distilled spirits, and seeds shall be exempt from the requirements set forth in Section 5. DECLARATION OF QUANTITY, and Section 6. PROMINENCE AND PLACEMENT: *Provided*, That quantity labeling requirements for such products are specified in Federal law or regulations issued pursuant to Federal law, so as to follow reasonably sound principles of providing consumer information.

7.9. *FLUID DAIRY PRODUCTS, ICE CREAM, AND SIMILAR FROZEN DESSERTS.*—When packages of fluid dairy products and packages of ice cream and similar frozen desserts are standardized by law or regulation of the State of _____, such packages shall be exempt from the requirements in this regulation for

(a) LOCATION (Subsection 6.1.1.) and

(b) DUAL QUANTITY DECLARATION (Subsection 5.6.3.).

8. *VARIATIONS TO BE ALLOWED.*

8.1 *PACKAGING VARIATIONS.*

8.1.1. *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 comprising either a shipment or other delivery of the 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.

8.1.2 *VARIATIONS RESULTING FROM EXPOSURE.*—Variations from the declared weight or measure shall be permitted when caused by ordinary and customary erposure 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 posession or under the control of the packager or the person who introduces the package into intrastate commerce, exposure variations shall not be permitted.

8.2 *MAGNITUDE OF PERMITTED VARIATIONS.*—The magnitude of variations permitted under paragraphs 8, 8.1, 8.1.1, and 8.1.2. of this regulation shall, in the case of any shipment, delivery, or lot, be determined by the facts in the individual case.

9. *REVOCATION OF CONFLICTING REGULATIONS.*—All provisions of all orders and regulations heretofore issued on this same subject that are contrary to or inconsistent with the provisions of this regulation, and specifically _____ _____, are hereby revoked.

EFFECTIVE DATE

This regulation shall become effective on _____.

Given under my hand and the seal of my office in the City of _____, on this _____ day of _____, A.D. 19____.

Signed _____

(After having considered and having adopted by voice vote, Section by Section, the Model Packaging and Labeling Regulation of 1968, the Committee Chairman moved for adoption of the entire report. The move was seconded, and the entire report was adopted unanimously by voice vote.)

In submitting this Report, the Committee on Laws and Regulations acknowledges, with sincere gratitude, the significant contributions made to it throughout its deliberations. It is the Committee's view that, with a rapid response on the part of the individual States, the will of the Congress as expressed in the Fair Packaging and Labeling Act of 1966 will be implemented and the interest of the public—producers, distributors, and consumers—will be fully, effectively, and efficiently served.

The Committee assures the weights and measures officials, the industry and business representatives, and the consumers who together make up the National Conference on Weights and Measures that proposed modifications and proposed exemptions issued by the Federal agencies pursuant to their responsibilities under the Fair Packaging and Labeling Act will be given full and expeditious consideration and that this planned case-by-case consideration is, in its studied view, the very best approach.

W. A. Kerlin, *Chairman*

L. Barker

J. H. Wilson

J. F. Lyles

G. L. Delano

M. W. Jensen, *Secretary*

L. J. Chisholm, *Staff Assistant*

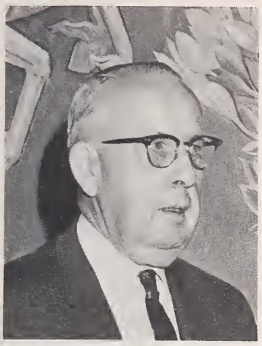
R. A. Vignone, *Attorney-Adviser*

Committee on Laws and Regulations

REPORT OF THE CONFERENCE COMMITTEE ON NOMINATIONS

Presented by R. E. Meek, *Chairman, Division of Weights and Measures, State of Indiana*

(Thursday, June 20, 1968)



In line with the requirements of the Organization and Procedure of the Conference, Dr. A. V. Astin, the Director of the National Bureau of Standards, is the President of the Conference and is authorized to designate the Executive Secretary. All other officers are to be elected by the vote of the Conference.

We are indebted to the Executive Secretary for furnishing a list of those who have attended past Conferences and the number of years each has served on various committees.

Due consideration was given by this Committee to attendance records, geographical distribution, and the Conference participation and interest shown in promoting weights and measures administration of the various officials.

Your Committee nominates for office for the 54th National Conference on Weights and Measures, the following:

Chairman: S. H. Christie, New Jersey.

Vice Chairmen: W. C. Hughes, Massachusetts; J. F. Lyles, Virginia; R. L. Sharp, Fort Worth, Texas; C. B. Whigham, New Mexico.

Treasurer: C. C. Morgan, Gary, Indiana.

Chaplain: R. W. Searles, Medina County, Ohio.

Executive Committee: L. A. Gredy, Indiana; W. H. Naudain, Delaware; M. H. Becker, Los Angeles County, California; F. D. Morgan, Utah; L. B. Frank, Cincinnati, Ohio; P. Grassi, Middletown, Connecticut; J. C. Boyd, Iowa; H. K. Sharp, Oklahoma; J. A. Hughes, Dearborn, Michigan; K. G. Hayden, District of Columbia.

R. E. Meek, *Chairman*
V. D. Campbell
S. H. Christie
S. F. True
J. H. Lewis
H. E. Crawford

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 by voice vote.)

REPORT OF THE CONFERENCE COMMITTEE ON RESOLUTIONS

Presented by M. L. Kinlaw, *Chairman, Supervisor, Weights and Measures Division, State of North Carolina*

(Thursday, June 20, 1968)

The Committee on Resolutions, having met and considered resolutions submitted to it by members of this 53d National Conference on Weights and Measures and other resolutions that originated with members of the Committee, now submits to this Conference for its consideration and action the following resolutions that have received the unanimous endorsement of the Committee.

There are included a number of individual resolutions which express appreciation for the arrangements for, conduct of, and participation in the National Conference. In order to expedite the handling of this phase of the Conference program, I request permission of the Chair simply to indicate those to whom appreciation is to be officially expressed:

1. To Lawrence C. McQuade, Assistant Secretary of Commerce for Domestic and International Business, for his constructive contribution to the 53d National Conference on Weights and Measures.

2. To Congressman J. T. Myers for his excellent and enlightening address to the 53d National Conference Luncheon.

3. To Margaret Dana, Consumer Relations Counsel and author of the syndicated column "Before You Buy," for her attendance at the 53d National Conference on Weights and Measures and for her excellent spontaneous observations during the Open Forum.

4. To the Director and staff of the National Bureau of Standards for their tireless efforts to insure a successful Conference in planning and administering the program and other details so essential to an interesting, educational meeting.

5. To all program speakers and standing committees for their excellent presentations and contributions to the success of the Conference.

6. To all State and local governing agencies that have arranged for or made possible the attendance at this meeting of one or more representatives of their organizations to participate in the deliberations directed toward the betterment of weights and measures controls throughout the Nation.

7. To business and industry for cooperating with the Conference, for attending and participating in the Conference, and for contributing to the success of the Conference through their participation and their gracious hospitality.

8. To the Management of the Sheraton-Park Hotel, who, through the facilities and courtesies of its staff, has materially assisted in the conduct of the Conference.

The following resolutions are being read in their entirety in order that they might receive the consideration of the members of this Conference:

RESOLUTION URGING GREATER FEDERAL-STATE COOPERATION IN THE DEVELOPMENT OF REGULATIONS PERTAINING TO PACKAGES

Whereas, the National Conference on Weights and Measures has, since 1905, unified the efforts of the States and their political subdivisions and has provided the leadership, expertise, and the enforcement authority in the fields of package labeling and package quantity accuracy since the first Model State Law on weights and measures was published in 1911; and

Whereas, the Federal agencies concerned with mandatory package labeling activities have evidenced neither the resources nor the strong inclination to exercise full regulatory responsibility over package labeling, as stipulated in Federal law; and

Whereas, neither have the aforementioned Federal agencies thus far demonstrated a desire to take advantage of the readily available knowledge and experience of weights and measures officials in developing meaningful, equitable, and enforceable package regulations; and

Whereas, the National Conference on Weights and Measures is a broadly recognized, well organized organization of proven competence and long experience in this area and is available, and has the means, to coordinate the aims of experience weights and measures officials;

Therefore, be it resolved that the 53d National Conference on Weights and Measures, assembled in Washington on this 20th day of June, 1968, inform appropriate Federal agencies of the great need for Federal-State cooperation in the development of meaningful, equitable, and enforceable regulations pertaining to packages, and urge said Federal agencies to utilize the facilities of the National Conference on Weights and Measures in the development of regulations, modification of regulations, and exemption from regulations relating to package labeling and accuracy; and be it further

Resolved that the Chairman of the National Conference transmit copies of this resolution to the President of the United States, to those members of Congress who have been involved with passage of the Fair Packaging and Labeling Act, and to the head of each appropriate Federal agency.

RESOLUTION ON NATIONAL CONSUMERS LEAGUE

Whereas the National Consumers League has vigorously striven for adequate and meaningful consumer protection programs at both state and national levels; and

Whereas the National Conference on Weights and Measures since 1905 has worked diligently to secure honesty and fair play in the fields of weights and measures, packaging, labeling, and advertising; and

Whereas, because of the mutual concern of both organizations over common problems affecting the well being and smooth functioning of our society; and

Whereas both organizations are currently meeting in Washington, D.C.: Be it therefore

Resolved that the 53d National Conference on Weights and Measures extend its sincere best wishes to the National Consumers League for a highly successful and constructive conference; and be it further

Resolved that the National Conference on Weights and Measures urge the National Consumers League and its geographical components to use to the optimum the services and capabilities of local and state weights and measures agencies to further the interests of the consuming public; and be it further

Resolved that a copy of this adopted resolution be immediately dispatched to the National Consumers League Conference for its information and consideration.

M. L. Kinlaw, *Chairman*
M. H. Becker
W. E. Czaia
E. T. Hunter
D. I. Offner
R. W. Richards
R. L. Sharp

Committee on Resolutions

(On motion of the Committee Chairman, seconded from the floor, the Report of the Committee on Resolutions was adopted by voice vote.)

REPORT OF THE CONFERENCE AUDITING COMMITTEE

Presented by L. H. DeGrange, *Field Supervisor of Weights and Measures, Department of Markets, State Board of Agriculture, College Park, Maryland*

(Thursday, June 20, 1968)

The Auditing Committee met on the morning of June 20 and inspected the financial statements of the Conference Treasurer, Mr. J. F. True. We found them to be complete and accurate.

L. H. DeGrange, *Chairman*
L. D. Holloway
H. E. Smith

(The report of the Auditing Committee was adopted by voice vote.)

330-514 O - 69 - 11

REPORT OF THE TREASURER

Presented by J. F. True, *State Sealer, Division of Weights and Measures, State Office Building, Topeka, Kansas*

(Thursday, June 20, 1968)

Balance on hand June 1, 1967		$7, 294. 80
Receipts:		
444 Registrations at $15.00	$6, 660. 00	
Extra Tickets, Hotel Luncheon	85. 00	
Extra Tickets, N.B.S. Luncheon	64. 00	
Trade Party	1, 555. 00	
Refund from Ellis Bowen	15. 00	
Bank Interest Accrued	136. 02	
Sub Total		8, 515. 02
Total		15, 809. 82
Disbursements: (Mr. Morgan)		
D. E. Brieghner, Lettering	$40. 50	
Franklin Press, Printing	91. 30	
Harold K. Oleet & Bros., Convention Supplies	14. 98	
Ellis Bowen, Chairman Expense	93. 04	
Sheraton Hotel, Executive Breakfast, Luncheon, Cotillion Room Party, Flowers, Hanging Banners, Xerox Copies, Audio Charges & Headquarters Expense	4, 243. 70	

Franklin Press, Tickets	$26. 80	
Stephen Lisieure, Music, Luncheon and Dance	590. 00	
National Detective Agency	54. 00	
Government Service Inc., N.B.S. Luncheon	729. 75	
D. C. Transit System, Inc., to N.B.S	90. 00	
Sheraton Park Hotel	25. 38	
Women's Luncheon (Cash)	50. 90	
Registration Desk Expense (Cash)	122. 00	
Numbering Machine (Cash)	18. 50	
Bank Charges	2. 00	
Sub Total		$6, 192. 85
Balance on hand September 8, 1967		9, 616. 97
Received from Mr. Morgan September 8, 1967		9, 616. 97
Interest accrued		175. 00
Sub Total		9, 791. 97

DISBURSEMENTS: (Mr. True)

Franklin Press, letterheads and envelopes	$58. 60	
Specifications and Tolerances Committee Expense	795. 35	
The American Lectrotype, Mats	82. 75	
G. G. Tauber Company, Inc	95. 23	
L and R Committee expense	263. 25	
Sheraton-Park Hotel	128. 14	
Franklin Press, Tickets & cards (o.s.)	98. 55	
Ernest Bell, lettering (o.s.)	58. 00	
Crestline Company, Inc. carrying cases (o.s.)	410. 00	
Sub Total		1, 989. 87
Balance on hand June 12, 1968		7, 802. 10
Outstanding checks #117, 118, 119		566. 55

(Signed) J. F. TRUE, *Treasurer*

(On motion of the Treasurer, seconded from the floor, the Report of the Treasurer was adopted by the Conference.)

PERSONS ATTENDING THE CONFERENCE

Delegates—State, City, and County Officials

ARKANSAS

State—— E. HOLIMAN, Senior Inspector, Weights and Measures Division, State Plant Board, 421½ W. Capitol, Little Rock 72703

CALIFORNIA

State—— W. A. KERLIN, Chief, Bureau of Weights and Measures, Department of Agriculture, 1220 N St., Sacramento 95814

County Sealers of Weights and Measures:

Alameda —— R. H. FERNSTEN, 333 5th St., Oakland 94607
Kern —— A. D. ROSE, 1116 E. California Ave., Bakersfield 93307
Los Angeles—— M. H. BECKER, 3200 N. Main St., Los Angeles 90031
San Diego—— S. R. MILLER, P. O. Box 588, San Diego 92112
San Mateo—— H. E. SMITH, 702 Chestnut St., Redwood City 94063

COLORADO

State—— E. PRIDEAUX, Supervisor, Weights and Measures Section, Division of Inspection and Consumer Services, Department of Agriculture, State Services Bldg., 1525 Sherman St., Denver 80203

H. H. HOUSTON, Director, Oil Inspection Department, 1024 Speer Blvd., Denver 80304

CONNECTICUT

State—— J. BENNETT, Chief, Weights and Measures Division, Department of Consumer Protection, State Office Bldg., Hartford 06115

W. B. KELLEY, Senior Inspector

City Sealer of Weights and Measures:

Hartford 06103—— N. KALECHMAN, City Hall
Middletown 06457— P. GRASSI, Box 223
New Britain 06151— A. J. ALBANESE, City Hall

DELAWARE

State—— W. H. NAUDAIN, Director, Department of Weights and Measures, State Board of Agriculture, Dover 19901

Inspectors:
W. C. BAUMGART
R. C. DAVIDSON
F. D. DONOVAN
W. D. HUDSON
J. W. KANE
E. KEELEY
R. R. SMITH

DISTRICT OF COLUMBIA

State—— B. A. Pettit, Chief, Weights, Measures, and Markets Branch, Department of Licenses, District Bldg., 1350 E St. NW., Washington 20004
K. G. Hayden, Assistant Chief
D. K. Forbes, Supervisor
I. L. Wagner, Supervisor
Inspectors:
J. T. Bennick
J. M. Burke
H. J. Douglas
F. C. Harbour
G. P. Kosmos
M. L. Matthews
W. A. Matthews
E. E. Maxwell
F. J. Murray
W. W. Wells

FLORIDA

State—— N. Berryman, Director, Division of Standards, Department of Agriculture, Nathan Mayo Bldg., Rm., 107, Tallahassee 32304
C. Wooten, Chief, Weights and Measures Section
W. Ball, Inspector

City Sealers of Weights and Measures:
Jacksonville 32202.. H. E. Crawford, Room 203 City Hall
Miami 33133—— J. C. Mays, 3319 Pan American Drive

GEORGIA

State—— J. B. McGee, Director, Weights and Measures Division, Department of Agriculture, Agriculture Bldg., Rm. 328, Capitol Square, Atlanta 30334

HAWAII

State—— G. E. Mattimoe, Chief, Weights and Measures Branch, Department of Agriculture, 1428 South King St., P. O. Box 5425, Honolulu 96814

IDAHO

State—— L. D. Holloway, Inspector, Bureau of Weights and Measures, Department of Agriculture, P. O. Box 790, Boise 83701

ILLINOIS

State—— J. Staley, Jr., Superintendent, Division of Feeds, Fertilizers, and Standards, Department of Agriculture, State Fairground, 531 E. Sangamon Ave., Springfield 62706

City Sealers of Weights and Measures:
Chicago 60610—— Mrs. J. Byrne, Commissioner, Consumer Sales, Weights and Measures, 320 N. Clark St., Rm. 302
Chicago 60605—— L. Prendergast, Public Vehicle License Commission, Rm. 105, 111 S. State St.

INDIANA

State — L. A. Gredy, Director, Division of Weights and Measures, State Board of Health, 1330 W. Michigan St., Indianapolis 46206
R. E. Meek, Consultant

County Sealers of Weights and Measures:

Clark — R. W. Walker, Court House Annex, Jeffersonville 47130
Floyd — E. G. Silver, P. O. Box 362, Rm. 325 City-County Bldg., New Albany 47150
Gibson — W. R. Sevier, Court House Annex, Princeton 47570
Grant — H. Cline, P. O. Box 421, Marion 46592
Howard — I. R. Frazer, 318 W. Mulberry, Kokomo 46901
Knox — W. D. Liddil, Court House, Vincennes 47591
Lake — N. Bucur, 524 Roosevelt St., Gary 46404
LaPorte — E. Hanish, 2702 Franklin St., Michigan City 46360
Madison — C. W. Moore, Box 84, Lapel 46051
Marion — E. H. Maxwell, 2001 Northwestern Ave., Indianapolis 46202
Porter — R. H. Claussen, Rm. 11 Court House, Valparaiso 46383
St. Joseph — C. S. Zmudzinski, Rm. 14–A Court House, South Bend 46601
Tippecanoe — W. McMurry, P. O. Box 444, Lafayette 47902
Vanderburgh — L. L. Lehr, 10 S. Lafayette St., Evansville 47714
Vigo — R. J. Silcock, Rm. 5 Court House, Terre Haute 47801

City Sealers of Weights and Measures:

Anderson 46011 — E. Gadberry, City Hall, P.O. Box 2100
Gary 46402 — C. C. Morgan, City Hall
Hammond 46325 — D. Brahos, City Hall
Indianapolis 46204 — W. R. Copeland, Room G–6, City-County Bldg.
South Bend 46621 — B. S. Cichowicz, Central Services Facility, West Wing, 701 W. Sample St.
Terre Haute 47801 — J. T. Harper, City Hall

IOWA

State — J. C. Boyd, Supervisor, Weights and Measures Division, Consumer Protection Services, Department of Agriculture, Capitol Bldg., Des Moines 50319

KANSAS

State — J. F. True, State Sealer, Division of Weights and Measures, State Board of Agriculture, State Office Bldg., Topeka 66612

LOUISIANA

State — J. H. Johnson, Director, Division of Weights and Measures, Department of Agriculture, P.O. Box 44292 Capitol Station, Baton Rouge 70804
F. F. Thompson, Chief Chemist, Petroleum Products Tax Division, P.O. Box 18374 University Station, Baton Rouge 70821

MAINE

State ---------- H. D. Robinson, Deputy State Sealer, Bureau of Weights and Measures, Department of Agriculture, Capitol Bldg., Augusta 04330

MARYLAND

State ---------- J. E. Mahoney, State Superintendent of Weights and Measures, Department of Markets, State Board of Agriculture, University of Maryland, College Park 20742
R. L. Thompson, Assistant State Superintendent
L. H. DeGrange, Field Supervisor
Inspectors:
L. E. Cirina
W. Garver
R. Glendenning
R. L. Halley
D. E. Helms
D. R. Stockman

County Sealers of Weights and Measures:

Prince George's---- R. J. Cord, County Service Bldg., Rm. 101, Hyattsville 20788
Deputies:
L. S. Grasso
D. M. Green
D. F. Savage
W. P. Wiseman

MASSACHUSETTS

State ---------- W. C. Hughes, Head Administrative Assistant, Division of Standards, Department of Labor and Industries, State House, Boston 02133

City Sealers of Weights and Measures:

Cambridge 02139--- A. T. Anderson, City Hall
Everett 02149------ L. L. Elliott, City Hall, Room 2
Fall River 02722--- P. P. Sullivan, City Hall
Fitchburg 01420---- W. T. Deloge, 42 Elm St.
Somerville 02145--- E. L. Mallard, Public Works Bldg., Franey Rd.

MICHIGAN

State ---------- R. M. Leach, Assistant Chief, Food Inspection Division, Department of Agriculture, Lewis Cass Bldg., Lansing 48913
C. O. Cottom, Supervisor, Weights and Measures

City Sealers of Weights and Measures:

Dearborn 48126---- J. J. Hubbard, Councilman, 9680 Eagle, City Hall
J. A. Hughes, 13030 Hemlock
Detroit 48207------ J. T. Daniell, 1445 Adelaide St.
Lansing 48933----- R. Rebuffo, Chief Deputy State Sealer, Bureau of
Livonia 48154----- R. C. Baumgartner, 15050 Farmington Rd.

MINNESOTA

State ---------- W. E. Czaia, Supervisor, Department of Weights and Measures, Railroad and Warehouse Commission, One Flour Exchange, Minneapolis 55415
Inspectors:
A. W. Fenger
R. A. Tharalson

City Inspector of Weights and Measures:
Minneapolis 55415-- J. G. Gustafson, 101–A City Hall

MISSOURI

State---------- J. H. Wilson, Director, Weights and Measures Division, Department of Agriculture, Jefferson City 65102

County Sealer of Weights and Measures:
St. Louis---------- L. A. Rick, 8008 Carondelet, Room 414, Clayton 63105

City Sealer of Weights and Measures:
St. Louis 63103----- D. I. Offner, City Hall, Room 414

MONTANA

State----------G. L. Delano, Chief Sealer, Division of Weights and Measures, Department of Agriculture, Capitol Bldg., Helena 59601

NEVADA

State---------- R. Rebuffo, Chief Deputy State Sealer, Bureau of Weights and Measures, Department of Agriculture, 350 Capitol Hill Ave., P. O. Box 1209, Reno 89504

NEW HAMPSHIRE

State---------- W. J. Tusen, Chief Inspector, Bureau of Weights and Measures, Division of Markets and Standards, Department of Agriculture, State Office Bldg., Concord 03301

NEW JERSEY

State---------- J. M. Katz, Deputy Attorney General, Office of the Attorney General, State House Annex, Trenton 08625
W. J. Wolfe, Sr., State Superintendent, Division of Weights and Measures, Department of Law and Public Safety, 187 W. Hanover St., Trenton 08625
S. H. Christie, Jr., Deputy State Superintendent
J. R. Bird, Supervisor, Technical Services
C. P. Conrad, Jr., Weights and Measures Assistant

County Superintendents of Weights and Measures:
Bergen---------- J. A. Pollock, 66 Zabriskie St., Hackensack 07601
Burlington--------- D. F. Hummel, County Office Bldg., 49 Waters St., Mount Holly 08060
Camden---------- A. J. Francesconi, Room 403, City Hall, Camden 08101
Cumberland-------- G. S. Franks, 1142 Landis Ave., Vineland 08360
N. Di Marco, Assistant, Court House, Bridgeton 08302
Hudson---------- R. J. Bahun, 595 Newark Ave., Jersey City 07306
Mercer---------- R. M. Bodenweiser, Court House, Trenton 08607

Monmouth_____ W. I. Thompson, P. O. Box 74, Allenhurst 07711
J. A. J. Bovie, Jr., Assistant Superintendent, 82 W. Wall St., Neptune City 07753
W. G. Dox, Assistant Superintendent, 216 Maple Ave., Red Bank 07701
Salem_____ R. B. Jones, P. O. Box 24, Salem 08079
Somerset_____ J. A. Kriney, Administration Bldg., Somerville 08876
Warren_____ G. E. Connolly, Court House, Belvidere 07823
J. P. Burns, Assistant Superintendent

Municipal Superintendents of Weights and Measures:

Jersey City 07302___ P. A. Wermert, City Hall
Kearney 07031_____ J. Pollock, Town Hall
Passaic 07055_____ P. DeVries, City Hall
Trenton 08608_____ R. J. Boney, City Hall Annex, 324 E. State St.

NEW MEXICO

State_____ C. B. Whigham, Chief, Division of Markets, Weights and Measures, Department of Agriculture, P. O. Box 170, University Park 88070

NEW YORK

State_____ D. J. Wickham, Commissioner, Department of Agriculture and Markets, State Campus, Albany 12226
F. J. Fallon, Director, Bureau of Weights and Measures, Laboratory Bldg., 1220 Washington Ave., Albany 12226
H. L. Dillon, Inspector

County Sealers of Weights and Measures:

Nassau_____ J. A. Occhiogrosso, 1035 Stewart Ave., Garden City 11530
A. W. Weidner, Assistant Sealer

City Sealers of Weights and Measures:

Glen Cove 11542____ E. T. Hunter, City Hall
Ithaca 14850_____ E. P. Nedrow, City Hall, 108 E. Green St.
Lackawanna 14218_. J. J. Seres, 84 Rosary Ave.
New York 10013____ R. W. Brevoort, Deputy Commissioner, Department of Markets, 137 Centre St.
M. Greenspan, Chief Inspector, Division of Consumer Law Enforcement
Yonkers 10701_____ S. J. DiMase, City Hall

NORTH CAROLINA

State_____ J. I. Moore, Superintendent, Weights and Measures Division, Department of Agriculture, P. O. Box 2281, Raleigh 27602
M. L. Kinlaw, Supervisor
Inspectors:
W. D. Taylor
J. P. Whitfield

OHIO

State—— F. P. Gallo, Chief, Division of Weights and Measures, Department of Agriculture, Reynoldsburg 43068
V. D. Campbell, (Mailing Address: P. O. Box 41, Pataskala 43062)

County Inspectors of Weights and Measures:
Ashtabula—— F. Felch, Deputy Inspector, Court House, Jefferson 44074
Auglaize—— F. Wellman, R. R. #1, New Knoxville 45871
Greene—— A. Gellenbeck, Auditor's Office, Court House, Xenia 45385
Medina—— R. W. Searles, Board of Education Bldg., 137 W. Friendship, Medina 44256

City Sealers of Weights and Measures:
Akron 44304—— R. K. Slough, 69 N. Union St.
Cincinnati 45214—— L. B. Frank, 2147 Central Ave.
Dayton 45402—— K. Gulledge, 960 Ottawa St.

OKLAHOMA

State—— H. K. Sharp, Assistant Director, Marketing Division, State Board of Agriculture, Capitol Bldg., Oklahoma City 73105
R. L. Smith, Assistant Director, Oklahoma State Bureau of Standards, 1808 Newton Dr., Norman 73069

PENNSYLVANIA

State—— R. W. Richards, Director, Bureau of Standard Weights and Measures, Room B–39 Highway and Safety Bldg., Harrisburg 17120

County Inspectors of Weights and Measures:
Allegheny—— W. D. Scott, Rm. #4, Court House, Pittsburgh 15219
Beaver—— W. Panek, Court House, Beaver 15009

City Inspectors of Weights and Measures:
Philadelphia 19107— S. F. Valtei, Chief, 622 City Hall Annex
Field Inspectors:
C. E. McHugh
J. A. Sabo, Jr.

RHODE ISLAND

State—— E. R. Fisher, State Sealer of Weights and Measures, Department of Labor, Capitol Industrial Center Bldg., 235 Promenade St., Providence 02908

SOUTH CAROLINA

State—— J. V. Pugh, Director, Bureau of Inspection, Department of Agriculture, P. O. Box 12080, Columbia 29211
R. F. Burton, Inspector

TENNESSEE

State—— M. Jennings, Director, Division of Marketing, Department of Agriculture, Melrose Station, Box 9039, Nashville 37204

TEXAS

State—— R. T. Williams, Chief, Consumer Service Division, Department of Agriculture, P. O. Drawer BB—John Reagan Bldg., Austin 78711
C. H. Vincent, Assistant Chief
M. M. Liberty, Inspector

City Sealer of Weights and Measures:

Fort Worth 76107— R. L. Sharp, Department of Public Health and Welfare, Public Health Center, 1800 University Dr.

UTAH

State—— F. D. Morgan, Supervisor, Weights and Measures, Department of Agriculture, Agriculture Laboratory Bldg., 34 E. 400 N., Salt Lake City 84114

VERMONT

State—— T. F. Brink, Director, Division of Standards, Department of Agriculture, Agriculture Bldg., Monpelier 05602

VIRGINIA

State—— J. F. Lyles, Supervisor, Weights and Measures Regulatory Section, Division of Regulatory Services, Department of Agriculture and Commerce, 1436 E. Main St., Room 302, Richmond 23219
J. C. Stewart, Assistant Supervisor
F. W. Saunders, Field Supervisor
Inspectors:
E. W. Hudson
G. E. Porter
R. N. Trenary

City Sealers of Weights and Measures:

Alexandria 22313. L. W. Vezina, Cameron & Royal St., Box 178
Norfolk 23501—. W. C. Snell, City Hall Bldg., Room 803
Richmond 23219—. A. B. Moody, Jr., 501 N. Ninth St.
E. C. Rager, Inspector
Roanoke 24001—. L. R. Thomas, 32 E. Campbell Ave.

WASHINGTON

State—— J. H. Lewis, Chief, Weights and Measures Section, Department of Agriculture, Box 120, Olympia 98501

City Sealers of Weights and Measures:

Seattle 98104—— M. R. Dettler, Assistant Director, Division of Licenses and Standards, 104 Seattle Municipal Bldg., 600 Fourth Ave.
Tacoma 98402—. D. H. McLennan, Director, Department of Tax & License, Room 236, County-City Bldg.

WEST VIRGINIA

State—— L. Barker, Commissioner, Department of Labor, 1800 E. Washington St., Charleston 25305
W. H. Holt, Administrative Assistant to Commissioner
B. R. Haught, Director, Division of Consumer Protection
Chief Inspectors:
R. B. Coughenour
J. Finley
F. J. Thomas
Inspectors:
R. G. Jarvis
R. D. Williams

WISCONSIN

State—— D. E. Konsoer, Director, Bureau of Weights and Measures, Food Division, Department of Agriculture, Hill Farms State Office Bldg., Madison 53702

City Sealers of Weights and Measures:

Green Bay 54301— N. Tilleman, City Hall
Manitowoc 54220— P. E. Krainik, City Hall
Racine 53403—— R. J. Zierten, City Hall
Sheboygan 53081— R. K. Lorenz, City Hall
West Allis 53214— A. E. LaBoda, City Hall

Advisory Members

Department of Commerce:
L. C. McQuade, Assistant Secretary of Commerce.
Business and Defense Services Administration:
Saul Padwo, Director, Scientific Photographic and Business Equipment Div.
National Bureau of Standards:
Office of the Director (Div. 100):
A. V. Astin, Director.
A. J. Farrar, Legal Advisor.
Office of Public Information (Div. 102):
J. F. Reilly, Writer-Editor.
Office of Associate Director for Technical Support:
Office of Technical Information and Publications (141):
W. R. Tilley, Chief.
Institute for Basic Standards (200):
Metrology Division (212):
Mass and Volume Section (212.31):
H. E. Almer, Physical Science Technician.
J. F. Houser, Physical Science Technician.
R. M. Schoonover, Physical Science Technician.
Institute for Materials Research (300):
Inorganic Materials Division (313):
Crystal Chemistry Section (Div. 313.04):
H. S. Peiser, Chief.

Department of Commerce—Continued
National Bureau of Standards—Continued
Institute for Applied Technology (400):
B. M. Levin, Special Assistant to the Director.
Manager, Engineering Standards (Div. 402):
M. W. Jensen, Chief.
R. A. Vignone, Attorney-Adviser.
L. J. Chisholm, Weights and Measures Coordinator.
Mrs. D. J. Snyder, Secretary.
Mrs. J. C. Cochran, Secretary.
Miss J. E. Adams, Secretary.
Office of Engineering Standards Services (Div. 403):
D. R. Mackay, Chief.
H. A. Philo, Technical Standards Coordinator.
C. B. Phucas, Standards Coordinator.
Office of Weights and Measures (404):
H. F. Wollin, Assistant Chief.
R. N. Smith, Technical Coordinator.
E. A. Vadelund, Weights and Measures Coordinator.
O. K. Warnlof, Weights and Measures Coordinator.
S. Hasko, Engineer.
C. H. Schreyer, Engineer.
T. M. Stabler, Laboratory Metrologist.
H. K. Johnson, Engineering Technician.
B. C. Keysar, Engineering Technician.
R. L. Koeser, Weights and Measures Coordinator.
D. E. Edgerly, Weights and Measures Coordinator.
P. H. Carr, Graphic Arts Aid.
J. W. Little, Physicist.
Miss C. A. Kingsolver, Physicist.
S. L. Hatos, Economist.
K. G. Newell, Economist.
W. C. Creek, Engineering Aid.
Mrs. F. C. Bell, Administrative Assistant.
Mrs. E. M. Burnette, Secretary.
Miss S. L. Beall, Secretary.
Miss E. A. Van Fossen, Secretary.
Mrs. J. A. Donivan, Secretary.
J. L. Chittams, Laborer.
J. C. DeBuchananne, Summer Working Aid.

Department of Agriculture:
Packers and Stockyards Administration:
Scales and Weighing Branch:
R. D. Thompson, Chief.
C. H. Oakley, Assistant Chief.
T. C. Harris, Jr., Scales and Weighing Specialist.
M. W. Stephens, Scales and Weighing Specialist.
B. D. Baird, Scales and Weighing Specialist, Room 831 Federal Bldg., Memphis, Tenn. 38103.

Federal Trade Commission:
F. Cassidy, Scientist.
W. C. Gross, Attorney.
Anita Morse, Attorney.
D. Perry, Attorney.

Department of Health, Education, and Welfare:
Food and Drug Administration:
R. E. Dickinson, Food and Drug Officer, Office of Legislative and Governmental Services.

Associate Members—Manufacturers, Industry, Business

Acme Markets, Inc.:
M. R. Blodgett, Director, Quality Control, 124 N. 15th St., Philadelphia, Pennsylvania 19102
American Bakers Association:
J. M. Creed, General Counsel, 1700 Pennsylvania Ave., NW., Washington, D. C. 20006
American Can Company:
W. H. Marks, Supervisor, Specifications Department, 333 N. Commercial St., Neenah, Wisconsin 54956
P. F. Cundy, Administrator, Regulatory Compliance
American Meter Controls, Inc.:
T. J. Smith, Product Manager, 13500 Philmont Ave., Philadelphia, Pennsylvania 19116
American Oil Company:
K. C. Jacob, Assistant Regional Engineer, 1 North Charles St., Baltimore, Maryland 21201
American Paper Institute:
C. J. Carey, Executive Secretary, 260 Madison Ave., New York, New York 10016
American Petroleum Institute:
R. Southers, Operations and Engineering Coordinator, 1271 Avenue of the Americas, New York, New York 10020
American Sugar Company:
E. P. Lorfanfant, Attorney, 120 Wall St., New York, New York 10005
Arkstrom Industries:
A. Franzblau, President, 415 Avon Ave., Newark, New Jersey 07108
Armour & Company:
C. V. Thompson, Production Control Manager, P. O. Box 9222, Chicago, Illinois 60690
Associated Tobacco Mfrs., Inc.:
C. J. Mouhtouris, Executive Vice President, 910 17th St., NW., Washington D. C. 20006
Atkins & Durbrow, Inc.:
J. O. Fletcher, Sales Manager, Box 146, Niagara Square, Buffalo, New York 14202
Atlantic Richfield Company:
R. E. Hunt, Service Station Manager, 260 S. Broad St., Philadelphia, Pennsylvania 19102
W. A. Lindsay, Manager, Automotive Engineering
Avis Rent-a-car System, Inc.:
D. I. Schaffer, Corporate Counsel, 900 Old Country Road, Garden City, New York 11530
Badger Meter Mfg. Company:
C. E. Kohl, Industrial Sales Manager, 4545 W. Brown Deer Rd., Milwaukee, Wisconsin 53223

Bennett Pump Division, John Wood Company:
H. A. Exner, 31 Alleghany Ave., Towson, Maryland 21204
M. S. Godsman, Service Manager, Broadway & Wood Sts., Muskegon, Michigan 49444
Borden, Inc.:
W. E. Forte, Attorney, 350 Madison Ave., New York, New York 10017
Bowser, Inc.:
H. E. Rittenhouse, Chief Engineer, P. O. Box 250, Greeneville, Tennessee 37743
Can Manufacturers Institute, Inc.:
S. J. Barca, Staff Assistant to the President, 821 15th St., NW., Washington, D. C. 20005
Cardinal Scale Manufacturing Company:
W. H. Perry, President, Box 151, Webb City, Missouri 64870
Carnation Company:
R. F. Daily, Attorney, 5045 Wilshire Blvd., Los Angeles, California 90036
G. T. Jeffers, Attorney, 1155 15th St., NW., Suite 312, Washington, D. C. 20005
Chatillon, John, & Sons (Division of Aero-Chatillon Corporation):
N. Lavenda, Office Sales Manager, 83–30 Kew Gardens Rd., Kew Gardens, New York 11415
G. C. Reiley, Vice President
Chemical Specialties Manufacturers Association, Inc.:
R. L. Ackerly, Counsel, Sellers, Conner & Cuneo, 1625 K St., NW., Washington, D. C. 20006
A. A. Mulliken, Secretary, 50 E. 41st St., New York, New York 10017
Coca-Cola Company:
R. L. Callahan, Attorney, 310 North Ave. (P.O. Drawer 1734), Atlanta, Georgia 30301
C. R. Gillespie, Staff Representative, Public Affairs Department
Colgate-Palmolive Company:
R. R. Phillips, Associate Counsel, 300 Park Ave., New York, New York 10022
E. E. Wolski, Manager of Quality Control
Colt Industries:
W. T. Humphreys, Washington Representative, 1700 Pennsylvania Ave., NW., Washington, D. C. 20006
Continental Can Company:
L. B. Bracken, Manager Quality Control, Bondware Division, 614 Fourth St., Three Rivers, Michigan 49093
T. P. McGlynn, Manager, New Product & Market Development, 633 Third Ave., New York, New York 10017
Covington & Burling:
E. Dunkelberger, 701 Union Trust Bldg., Washington, D. C. 20005
P. M. Phillipes
Dairy & Food Industries Supply Association:
W. A. Dean, Associate Technical Director, 1145 19th St., NW., Washington, D. C. 20036
Mrs. S. W. G'shwend, Marketing Librarian
D. H. Williams, Technical Director
Dee, J. B., & Company, Inc.:
G. Fishman, General Manager, 1722 W. 16th St., Indianapolis, Indiana 46207
Detecto Scales Inc.:
M. Rapp, Vice President, 540 Park Ave., Brooklyn, New York 11205

Distilled Spirits Institute:
A. P. Bryan, Executive Assistant, 1132 Pennsylvania Bldg., Washington, D. C. 20004
DuPont de Nemours, E. I. & Company:
F. D. Sparre, 6054 DuPont Bldg., Wilmington, Delaware 19898
Engler Instrument Company:
J. F. Bennett, Representative, 3907 Underwood St., Chevy Case, Maryland 20015
W. T. Heydt, Sales Manager, 250 Culver Ave., Jersey City, New Jersey 07305
Ex-Cell-O Corporation:
D. J. Crawford, Director of Pure-Pak Laboratories, 850 Ladd Rd., Walled Lake, Michigan 48088
A. Dorbeck, Supervisor, Pure-Pak Division, P. O. Box 386, Detroit, Michigan 48232
C. Taylor, Supervisor, Technical Center
Fafard, Conrad, Inc.:
H. H. Fafard, Vice President, Springfield, Massachusetts 01101
Fairbanks Morse, Inc.:
P. J. Rozema, Marketing Manager, 34 Western Ave., St. Johnsbury, Vermont 05819
Federal-State Reports:
Mrs. J. Wilson, Editor, 910 17th St. NW., Washington, D.C. 20006
Food Chemical News:
Miss N. J. Pargas, Reporter, 601 Warner Bldg., Washington, D.C. 20004
L. Rothschild, Jr., Editor and publisher
Fuller, H. J., & Sons, Inc.:
W. S. Fuller, Vice President, General Manager, 1212 Chesapeake Ave., Columbus, Ohio 43212
Gasoline Pump Manufacturing Association:
F. D. Loomer, Association Staff, 331 Madison Ave., New York, New York 10017
General Foods Corporation:
R. H. Pratt, Director, Special Projects, 250 North St., White Plains, New York 10602
J. A. Riegel, General Solicitor
General Mills, Inc.:
D. B. Colpitts, Technical Manager, Weights and Measures, 1081 21st Ave. SE., Minneapolis, Minnesota 55414
O. A. Oudal (Home Address: 1411 E. 99th St., Minneapolis, Minnesota 55420)
Gerber Products Company:
T. N. Moss, Attorney, 445 State Street, Fremont, Michigan 49412
Gilbarco, Inc.:
R. E. Nix, Assistant to Manager of Engineering, Greensboro, North Carolina 27420
Glass Container Corporation:
H. P. Bauer, Products Manager, Dairy & Soda Division, Fullerton, California 92634
Glass Container Manufacturers Institute, Inc.:
E. J. Mentz, Assistant Director, Technical Services, 330 Madison Ave., New York, New York 10017
C. E. Wagner, Director of Technical Services
Grocery Manufacturers of America, Inc.:
F. T. Dierson, General Counsel, 205 E. 42d St., New York, New York 10017

Gulf Oil Corporation:
J. O. Habicht, Superintendent, Marketing Equipment, P. O. Box 8056, Philadelphia, Pennsylvania 19101
Haskon, Inc.:
J. L. McKeen, Assistant Director of Sales, 1406 W. Winona Ave., Warsaw, Indiana 46580
E. C. Wenger, Manager, New Product Development, 11–05 44th Dr., Long Island City, New York 11101
Hertz Corporation:
L. B. Mewhinney, Associate Corporation Counsel, 660 Madison Ave., New York, New York 10021
Hobart Manufacturing Company:
K. C. Allen, Vice President, Scale Operations, 448 Huffman Ave., Dayton, Ohio 45403
M. E. Bone
C. G. Gehringer, Sales Manager, 711 Pennsylvania Ave., Troy, Ohio 45373
Howe Richardson Scale Company:
R. P. Closson, Assistant National Service Manager, 2839 S. 19th Ave., Broadview, Illinois 60153
E. L. Ervin, Marketing Manager, 680 Van Houten Ave., Clifton, New Jersey 07013
R. G. Harris, Assistant National Service Manager
G. D. Wilkinson, National Service Manager
Humble Oil & Refining Company:
H. A. Clark, Stock Loss Coordinator, 5 Raymond Ave., Spring Valley, New York 10977
S. M. Paxson, Quantity and Quality Control Specialist, 7720 York Rd., Baltimore, Maryland 21203
Hunt-Wesson Foods, Inc.:
R. E. McKennan, Manager, Quality Assurance, 1645 W. Valencia Dr. Fullerton, California 92635
International Association of Ice Cream Manufacturers:
J. F. Speer, Executive Assistant, 1105 Barr Bldg., Washington, D.C. 20006
Jewel Companies, Inc.:
R. W. Miller, Jr., General Attorney, 1955 W. North Ave., Melrose Park, Illinois 60160
Johnson & Johnson:
G. E. Heinze, Chief Control Chemist, Rt. #1, New Brunswick, New Jersey 08903
Kimberly-Clark Corporation:
H. J. Sheerin, Vice President and Director, Neenah, Wisconsin 54956
W. W. Whitlinger, Director, Quality Assurance
King, J. A., & Company:
J. A. King, Sr., President, 2620 High Point Rd., P. O. Box 21225, Greensboro, North Carolina 27420
Kiplinger Washington Letter:
P. Hencke, Associate Editor, 1729 H St. NW., Washington, D.C. 20006
Kraft Foods:
N. E. Toft, Director, Marketing Services, 500 Peshtigo Court, Chicago, Illinois 60611
Kroger Company:
R. N. Johnson, Supervisor, Regulatory Compliance, 1240 State Ave., Cincinnati, Ohio 45204

Label Manufacturers National Association, Inc.:
F. R. Cawley, Executive Director, Room 1015 Shoreham Bldg., 15th & H Sts. NW., Washington, D.C. 20005
Laboratory Equipment Corporation:
H. T. Litteral, Sales Manager, 156 E. Harrison St., Mooresville, Indiana 46158
Langley Peat Ltd.:
J. T. Bell, President, 496 West 40, Vancouver, BC, Canada
Lehn & Fink Products Corporation:
F. Taylor, Group Leader Aerosols, 225 Summit Ave., Montvale, New Jersey 07645
Lever Brothers Company:
L. H. Bloom, Vice President & General Counsel, 390 Park Ave., New York, New York 10022
W. L. Button, Jr., Plant Operations Manager
Liberty Glass Company:
E. K. Mills, Technical Director, P.O. Box 520, Sapulpa, Oklahoma 74066
Liqui-Box Corporation:
W. J. Schieser, Vice President, Product Development, 6950 Worthington Galena Rd., Worthington, Ohio 43085
J. B. Smith, Manager, Marketing Services
Liquid Controls Corporation:
H. Siebold, Vice President, Engineering, P.O. Box 101, North Chicago, Illinois 60064
Lockheed Electronics:
J. F. Devitt, Service Manager, U.S. Highway #1, Metuchen, New Jersey 07605
Martin-Decker Corporation:
E. I. Shelley, Assistant Manager, Industrial Sales, 1928 S. Grand Ave., Santa Ana, California 92705
Merrick Scale Manufacturing Company:
L. J. Walker, Product Manager, 180 Autumn St., Passaic, New Jersey 07055
Miller, Byron, & Associates:
B. D. Miller, Owner, 7712 Georgia Ave., NW., Washington, D.C. 20012
Mobile Oil Corporation:
W. J. Martin, Project Engineer, #4 Penn Center, Plaza, Philadelphia, Pennsylvania 19103
Murphy, L. R., Scale Company:
L. R. Murphy, President, 1610–12 North "C" St., Sacramento, California 95814
McGraw-Hill, Inc.:
S. T. Payne, Writer, 400 National Press Bldg., Washington, D.C. 20004
National Association of Dairy Equipment Manufacturers:
J. Marshall, Executive Vice President, 1012 14th St., NW., Washington, D.C. 20005
National Association of Frozen Food Packers:
L. S. Fenn, Director of Technical Services, 919 18th St., NW., Washington, D.C. 20006
F. G. Williams, Administrative Assistant
National Association of Margarine Manufacturers:
R. J. Leighton, Assistant to the President, 545 Munsey Bldg., Washington, D.C. 20004
National Canners Association:
R. B. Heiney, Director, Government-Industry Relations Division, 1133 20th St., NW., Washington, D.C. 20036

National Paint, Varnish and Lacquer Association:
D. P. Lynott, Associate General Counsel, 1500 Rhode Island Ave., NW., Washington, D.C. 20005
J. W. M. Montgomery, Director, Government-Industry Relations
D. S. Ring, General Counsel
National Soft Drink Association:
T. F. Baker, Executive Vice President, 1128 Sixteenth St., NW., Washington, D.C. 20036
T. A. Daly, Legal Counsel
Neptune Meter Company:
J. C. Hart, Assistant General Sales Manager, Liquid Meter Division, 47–25 34th St., Long Island City, New York 11101
E. F. Wehmann, Assistant Chief Engineer, Petroleum & Industrial
H. A. Lentz, Sales Engineer, 7 Bala Ave., Bala Cynwyd, Pennsylvania 19004
New Jersey State Chamber of Commerce:
P. Dorn, Secretary, 54 Park Place, Newark, New Jersey 07102
Owens-Illinois, Inc.:
W. A. Recknagel, Specifications Supervisor, 14th & Adams Sts., Toledo, Ohio 43601
Paper Stationery & Tablet Manufacturers Association:
F. Cowan, Jr., Executive Secretary, 444 Madison Ave., Suite 2301, New York, New York 10022
Peat Producers Association of the U.S., Inc.:
D. Dennison, General Counsel, 813 Union Savings & Trust Bldg., Warren, Ohio 44481
J. A. Hartman, Director, 410 Greenwich Ave., Greenwich, Connecticut 06830
Pepsi-Cola Company:
S. P. Porrazzo, Packaging Manager, 500 Park Ave., New York, New York 10022
Phillips Petroleum Company:
J. W. Hale, Technical Representative, 8 A2 Phillips Bldg., Bartlesville, Oklahoma 74003
Pillsbury Company:
C. E. Joyce, General Claims Manager, Pillsbury Bldg., 608 Second Ave., South, Minneapolis, Minnesota 55402
Plate, Cup & Container Institute:
D. H. Carleton, Administrative Manager, 250 Park Ave., New York, New York 10017
R. W. Foster, Executive Director
L. J. Moreman, Manager, General Services
Premier Peat Moss Corporation:
E. R. Bernay, Officer, 25 W. 45th St., New York, New York 10036
A. J. Zemel, Vice President
M. S. Fisher, Counsel, 122 E. 122d St., New York, N.Y. 10017
Procter & Gamble Company:
Dr. J. S. Brod, Associate Director, Product Development Division, Ivorydale Technical Center, Cincinnati, Ohio 45217
J. E. Stevenot, Associate Director, PS & DD Technical Service Dept. Factory and Buying
L. Theoharous, Associate Director, Soap Product Development
D. R. Byerly, Associate Director, Research and Development, W.H.T.C., Cincinnati, Ohio 45224
W. J. Hein, Attorney, 301 E. 6th St., Cincinnati, Ohio 45202
G. Hopper, Attorney
D. W. Rosenfeldt, Section Head, 6000 Center Hill Road, Cincinnati, Ohio 45224

Republic Steel Corporation:
D. R. Smith, Corporation Weighing Supervisor, 410 Oberlin Rd., SW., Massillon, Ohio 44646
Revere Corporation of America:
R. O. Beach, Vice President & General Manager, N. Colony Rd., Wallingford, Connecticut 06492
C. W. Silver, Chief Engineer
Rockwell Manufacturing Company:
A. J. Komich, Product Manager, Box 450, Statesboro, Georgia 30458
Safier, S., Inc.:
R. Olsen, Plant Manager, 314 Mercer St., Jersey City, New Jersey 07302
Sanitary Scale Company:
E. C. Karp, Vice President, Manufacturing and Engineering, 910 E. Lincoln Ave., Belvidere, Illinois 61008
Scale Journal Publishing Company:
Mrs. S. T. Pickell, Secretary-Treasurer, 176 W. Adams St., Chicago, Illinois 60603
Scale Manufacturers Association:
A. Sanders, Executive Secretary, No. 1 Thomas Circle, N.W., Room 304, Washington, D. C. 20005
Sealright Company, Inc.:
R. S. Weeks, Manager, Marketing Services, 605 W. 47th St., Kansas City, Missouri 64112
Sears, Roebuck and Company:
J. E. Lehrer, Attorney, Department 766, 925 S. Homan Ave., Chicago, Illinois 60607
Seraphin Test Measure Company:
L. C. Schloder, General Manager, 1314 N. 7th St., Philadelphia, Pennsylvania 19122
Shell Chemical Company:
G. W. Spotts, Supervisor, Technical Service Department, P. O. Box 700, Woodbury, New Jersey 08096
F. A. Weber, Manager, Market Development, Plastics, 113 W. 52d St., New York, New York 10019
Shell Oil Company:
W. B. Waterman, Senior Engineer, 50 W. 50th St., New York, New York 10020
Smith, A. O., Inc.:
P. E. Swanson, 1602 Wagner Ave., Erie, Pennsylvania 16511
Soap and Detergent Association:
E. S. Pattison, President 485 Madison Ave., New York, New York 10022
Anne M. Fallon, Legislative Assistant to the President
Society of the Plastics Industry, Inc.:
T. M. Carty, Secretary, Plastic Bottle Division, 250 Park Ave., New York, New York 10017
Spinks Scale Company:
D. F. Laird, President, 836 Stewart Ave., Atlanta, Georgia 30310
Swift and Company:
H. L. Hensel, Attorney, 115 W. Jackson, Chicago, Illinois 60604
E. G. Spiker, Manager, 711–14th St., NW., Washington, D. C. 20005
Texaco, Inc.:
R. H. Tolson, Assistant Superintendent, Construction & Equipment Division, 135 E. 42d St., New York, New York 10017

Thatcher Glass Manufacturing Company:
R. E. Chapman, Manager, Mold and Product Design, 1901 Grand Central Ave., Elmira, New York 14901
Theisen Clemens Company:
R. C. Primley, Operation Manager, 1207 Broad St., St. Joseph, Michigan 49085
Thread Institute, Inc.:
W. F. Operer, Executive Director, 15 E. 40th St., New York, New York 10016
Thurman Scale Company:
J. R. Schaeffer, Vice President, 1939 Refugee Rd., Columbus, Ohio 43207
Tobacco Institute, Inc.:
F. J. Welch, Vice President, 1735 K St., NW., Washington, D.C. 20006
Tokheim Corporation:
W. E. Louthan, Service Manager, 1602 Wabash Ave., Fort Wayne, Indiana 46801
Toledo Scale Company:
W. E. Jenkins, Vice President, Sales, 5225 Telegraph Rd., Toledo, Ohio 43612
D. B. Kendall, Manager, Custom Engineering
R. V. Miller, Manager, Weights and Measures
Union Carbide Corporation:
W. M. Sawers, Manager, Special Services, 800 Wyatt Bldg., Washington, D.C. 20005
Veeder-Root Company:
H. W. Barnes, Sales Manager, Petroleum Products Division, 70 Sargeant St., Hartford, Connecticut 06102
T. J. McLaughlin, Product Sales Manager
Voland Corporation:
B. Wasko, Vice President, Engineering, 27 Centre Ave., New Rochelle, New York 10802
Wayne Pump Company:
F. W. Love, Administrative Assistant, 124 E. College Ave., Salisbury, Maryland 21801
Western Peat Moss, Ltd.:
A. D. Trott, Vice President, 401 Sharpstown State Bank Bldg., Houston, Texas 77036
J. Dunfield, President, Box 399, New Westminister, B.C., Canada
Winslow Government Standard Scale Works, Inc.:
C. E. Ehrenhardt, President, P.O. Box 1523, Terre Haute, Indiana 47808

OTHER GUESTS

Dr. Elmer F. Baumer, Assistant Dean and Professor, Ohio State University, 164 E. 19th Ave., Columbus, Ohio 43206.

Mrs. Margaret Dana, Consumer Relations Counsel, Consumer's Question Box, Research Center, R.D. #3, Doylestown, Pennsylvania 18901.

Speridiao Gabinio de Carvalho, Jr., Director, Instituto Nacional de Pesos e Medidas, Rua Padre Nobrega 539, Rio de Janeiro, Brazil.

Hugh Goonetilleke, Deputy Warden of the Standards, Weights and Measures Division, Department of Commerce, Park Road, Colombo 5, Ceylon.

Dr. L. J. Gordon, Director, Weights and Measures Research Center, Denison University, 117 Locust Place, Granville, Ohio 43023.

F. E. McLaughlin, Director, Producer-Marketing Relations, President's Committee on Consumer Interests, Room 103 Executive Office Bldg., Washington, D.C. 20506.

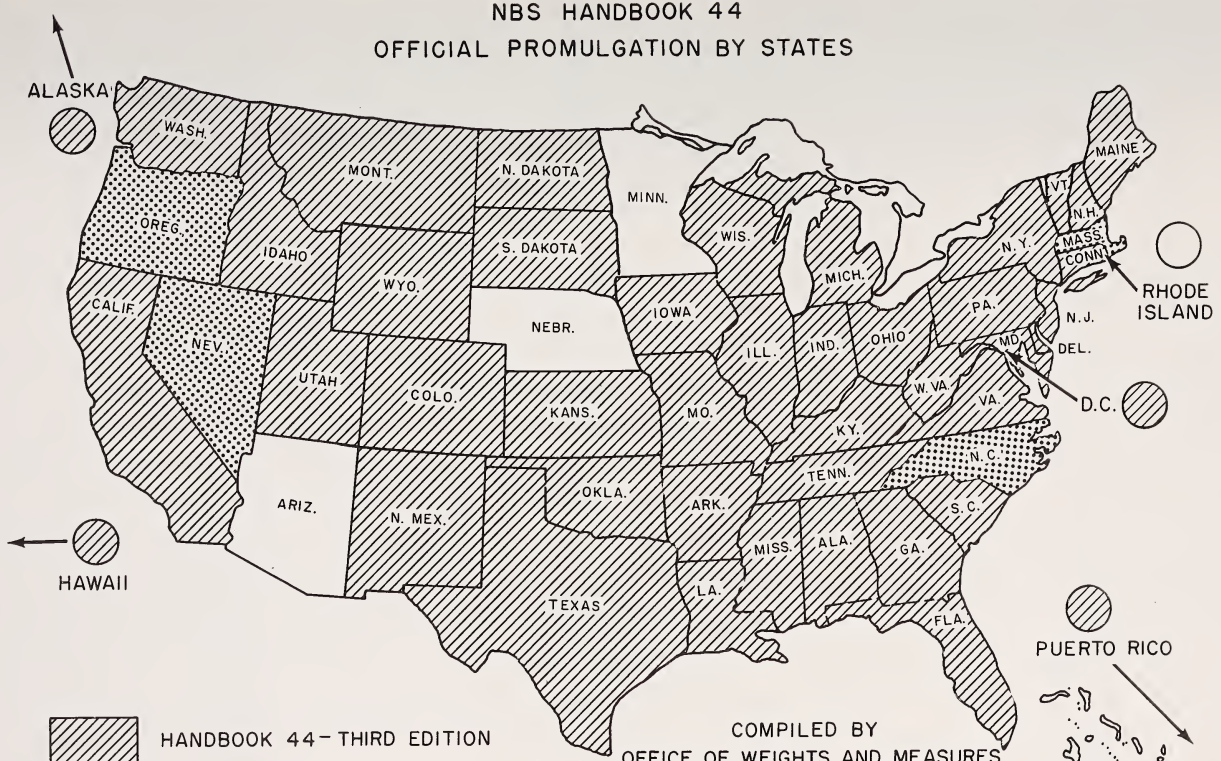
Honorable JOHN T. MYERS, Congressman, State of Indiana, House of Representatives, 1238 House Office Bldg., Washington, D.C. 20515.

MOACIR REIS, Vice Director, Instituto Nacional de Pesos e Medidas, Praea Maua 7, 9° andar, Rio de Janeiro, Brazil.

W. A. SCHEURER, 2146 Elgin Road, Columbus, Ohio 43221.

H. H. WRIGHT, 30 Catherine Street, Lyons, New York 14489.

NBS HANDBOOK 44
OFFICIAL PROMULGATION BY STATES



COMPILED BY
OFFICE OF WEIGHTS AND MEASURES
NATIONAL BUREAU OF STANDARDS
JUNE 1968

U.S. GOVERNMENT PRINTING OFFICE: 1969 O—330-514

SELECTED WEIGHTS AND MEASURES PUBLICATIONS OF THE NATIONAL BUREAU OF STANDARDS

NBS Handbook 44 1965 (Replacement Sheets issued annually)	Specifications, Tolerances, and Other Technical Requirements for Commercial Weighing and Measuring Devices. Looseleaf (binder not included)	$2. 00
NBS Handbook 67	Checking Prepackaged Commodities	0. 35
NBS Handbook 82	Weights and Measures Administration	1. 75
NBS Handbook 94	Examination of Weighing Equipment	3. 00
NBS Handbook 98	Examination of Farm Milk Tanks	. 35
NBS Handbook 99	Examination of Liquefied Petroleum Gas Liquid-Measuring Devices	. 35
NBS Circular 540	Weights and Measures Case Reference Book	1. 25
NBS Circular 593	Federal Basis for Weights and Measures	. 30
NBS Miscellaneous Publication 247	Weights and Measures Standards of the United States—a brief history	. 35
NBS Miscellaneous Publication 286	Units of Weight and Measure—Definitions and Tables of Equivalents	1. 50
NBS Technical Note 196	Report of the Investigation of Slow-Flow Meters for Fuel Oil Distribution Systems	. 20

REPORTS OF THE NATIONAL CONFERENCE ON WEIGHTS AND MEASURES

1963	MISCELLANEOUS PUBLICATION 254	. 75
1964	MISCELLANEOUS PUBLICATION 263	1. 00
1966	MISCELLANEOUS PUBLICATION 290	1. 00
1967	SPECIAL PUBLICATION 297	1. 25
Index to the Reports of the National Conference on Weights and Measures from the First to the Forty-fifth, 1905 to 1960	MISCELLANEOUS PUBLICATION 243	. 40

ORDER ALL PUBLICATIONS, WITH REMITTANCE, FROM THE SUPERINTENDENT OF DOCUMENTS, U.S. GOVERNMENT PRINTING OFFICE, WASHINGTON, D.C. 20402.