CS0–30

U. S. DEPARTMENT OF COMMERCE
BUREAU OF STANDARDS

THE COMMERCIAL STANDARDS SERVICE AND ITS VALUE TO BUSINESS

COMMERCIAL STANDARD CS0–30

ELIMINATION OF WASTE
Through
SIMPLIFIED COMMERCIAL PRACTICE

U. S. DEPARTMENT OF COMMERCE
R. P. LAMONT, Secretary
BUREAU OF STANDARDS
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PREFACE

Recent application of quality standards to familiar articles of commerce has greatly stimulated interest in the establishment of standards. It has been feared by some that if standards are applied too freely, individual expression will be fettered and we will come to lead a drab and stagnant existence with much of the uniformity of housing, food, clothing, etc., usually associated with military life. We need only glance at the rich background of standards in nature to gain sufficient perspective and obtain a better appreciation of present trends in standardization and their significance.

To nature, the process of standardization and the evolution of standardized forms is an old, old story. Throughout the ages nature has standardized all individuals of the same species so as to be essentially alike, and at the same time fundamentally different from individuals of other species. In the same species of plants, fishes, birds, or animals, individuals resemble each other in the minutest detail of structure and function. So thorough has nature been that every species may be recognized by the standardized organs, functions, characteristics, or habits peculiar to each.

It is difficult to imagine any human progress without the wonderful standardization nature has provided; in fact, without the systematic and orderly influence of standardization civilization would be impossible. Every item of existence would present a separate problem with no precedent for guidance, with no possibility for generalization, and, therefore, no possibility of knowledge which is based on generalization. There would be no organized life, no institutions, no customs, no laws, for these depend upon an underlying limitation of action and reaction. There could be no medicine and no surgery, for how could it be predetermined where to look for the heart or the stomach or, if you please, whether or not a given body contained such organs.

The more the mysteries of nature are dispelled by knowledge, the more is standardization revealed, as in the geometrical arrangement of crystal formation, predicted discoveries of new chemical elements, or the coming of a comet. We depend upon the meticulous regularity of the sun's appearance, the recurring phases of the moon, and the perfectly timed rotation of the planets. We accept as indisputable facts the definitely established boiling and freezing points, the peculiar behavior of certain materials and the changeless normal properties of elasticity, strength, hardness, ductility, viscosity, refractivity, electrical conductivity, permeability, and other properties of the elemental things of nature which man is constantly appropriating for his use.

The variations of color available to the painter are composed of parts of a narrow band of spectral wave lengths and all of the artistry in music is conveyed through another small group of frequencies. And yet we hear no complaints that nature has carried standardization to extremes, that life is dull, drab, or stagnant as a result of

standardized chemical elements, standardized crystalline growth, or wave lengths, as in sound, radio, light, and X rays.

The tennis player is confined to standards, such as the size, weight, and resilience of ball, dimensions of court, racquet and net, rules of the game, etc. The same is true of baseball, golf, and of every organized sport or athletic event.

The architect may be limited to two sizes of face brick but he has a choice of color, texture, and arrangement sufficient to produce an unlimited variety of structures and effects, while the accomplished limitation of dimensions gives him a basis upon which to start and relieves his mind altogether of the problem of the size of brick to be employed.

In every direction we find standardization, whether we look to the orbits of the electrons about the atom, the constellations of the stars, the microcosm or the macrocosm, commerce or the arts, industry or sport.

In the words of Albert W. Whitney under the title, The Place of Standardization in Modern Life, in the May, 1928, issue of Annals of the American Academy of Political and Social Science:

> There should be then a strong resemblance between the processes of nature and the processes of man * * * and the part that standardization has played in nature should give us a very excellent idea of the part that standardization can play and should play in the world of human activity.

Thus it is a natural and logical step for us to follow these wonderful precedents of nature and inborn characteristics of man and apply them to the commodities of commerce for our mutual benefit.

Industry has long sensed the need for a wider application and use of specifications developed and approved by nationally recognized organizations. To assist in securing this result and as a natural outgrowth of the movement toward elimination of waste through simplified practice, the National Bureau of Standards has set up a procedure under which specifications, properly indorsed, may be printed as official publications of the Department of Commerce and promulgated as "commercial standards."

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THE COMMERCIAL STANDARDS SERVICE AND ITS VALUE TO BUSINESS

NOTE.—Those who prefer the question and answer style for a quick grasp of the main features of the commercial standards service may turn directly to page 27.

I. BACKGROUND AND ORIGIN OF COMMERCIAL STANDARDS

1. EVOLUTION AND DEFINITION OF STANDARDS

Community life in ancient times was governed and advanced by customs and rules which constituted the first standards, such as, speech, symbol and picture writing, clothing, shelter, family, religion, time, and barter. The earliest known systems of weights and measures were those of the Assyrians, Babylonians, Chaldeans, and Egyptians. The English system of weights and measures may be traced to the early Saxons.

It is interesting to note that one of the first recommendations which the first President of the United States, George Washington, made to the first Congress, January, 1790, stated "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."

To most people the word "standard" connotes something carefully established by man, as a compulsory unit of weight, measure, or coinage. According to Funk and Wagnall's New Standard Dictionary the noun is defined as follows:

> Standard, 1. Any measure of extent, quantity, quality, or value established by law or by general usage and consent; a weight, vessel, instrument, or device sanctioned or used as a definite unit, as of value, dimension, time, or quality, by reference to which other measuring instruments may be constructed and tested or regulated.
>
> 2. Hence, any type, model, example, or authority with which comparisons may be made; any fact, thing, or circumstance forming a basis for adjustment and regulation; a criterion of excellence; tests; * * *.

We are concerned here not with *compulsory* standards established by law or authority, but with *voluntary* standards set up by common consent or as a result of the natural processes of evolution.

N. F. Harriman in his recent book, Standards and Standardization,[1] says:

> It is evident that the mere legal fixing and enforcement of fundamental and secondary units and standards, though an indispensable prerequisite of industrial standardization, does not of itself tend to reduce the variety of types, grades, sizes, finishes, etc., of products in use. Nor does the legal fixing of standard requirements of purity and quality have more than an indirect effect in this direction * * *.
>
> It is because of (voluntary) standardization of industry that western civilization has been able to forge ahead and eastern civilization remains pretty much where it was one or two centuries ago. While we invite and secure the labor-

[1] Published by the McGraw-Hill Book Co., New York, N. Y.

saving devices which make life more enjoyable, through standardized methods of manufacture, the oriental has denied himself these things, but has standardized his personal life. The Chinaman's clothes, thatched hut, wooden plow, and rice paddy are surely as standardized as anything found in American civilization. These things have been standardized there for centuries, and yet China has little desire to adopt modern machinery and methods. If the Chinaman had more standardized agricultural machinery—tractors, locomotives, and automobiles—his life would become much less standardized, and he would not be bound by the unchanging customs of the past.

No one can doubt that the standardization of materials, machines, processes, and products of manufacture has been one of the prime aids of American progress in the industrial arts. When a standard gage of track, standard couplers, air brakes, etc., were adopted for all railways, the unification of all the lines on the continent into a single system of transportation, by the interchange of cars, was made practically possible. Think what it would mean if each individual railway had its own gage of track, so that no cars or locomotives but its own could run upon its rails! Think what it would mean if each make of automobile required its own peculiar tires and spark plugs. The efficiency of these great inventions would be so minimized as to be all but destroyed. In standardization, the same principle has been applied with equal advantage to a thousand other things, great and small.

2. BEGINNING OF ORGANIZED STANDARDIZATION ACTIVITIES

Upon the outbreak of the World War, suddenly and almost unexpectedly, every large nation was confronted with a situation which put a stupendous and peculiar demand on its industrial resources. National defense demanded the maximum result from every effort, necessitating a scrupulous elimination of waste and friction in all fields of industrial endeavor.

In 1917 the War Industries Board was formed as a very important part of the Council of National Defense. Under this central organization, industry as a whole was coordinated and brought to a cooperative state.[a] All existing efforts toward standardization were put into practice wherever applicable, but they constituted only the beginning of what was actually needed. To further this, the conservation division of the War Industries Board was formed on May 8, 1918, and the Federal Government itself took steps to assist the development of standardization. In many cases the first action necessary was a reduction in variety, a simplification, after which standardization of the remaining varieties was applied as needed.

The War Industries Board, by means of its system of priorities, worked out a program for the operation of industrial plants on the balanced basis. It controlled the awarding of contracts, the allotments of raw materials, power, and labor. Nonessential industries producing nonessentials and luxuries, were discouraged; essential industries were encouraged. Its economies through standardization and simplification of industrial products were very great. It saved 50,000,000 yards of wool, 260,000 tons of tin plate; cut the styles of stoves and heaters 75 per cent, eliminated 5,500 styles in rubber footwear, cut tire varieties from 287 to 32, cut shoe colors from 81 to 6, cut trunks to 6 sizes, reduced washing-machine styles from 446 to 18, and eliminated 90 per cent of household wringer styles, cut pocket knives from 300 styles to 45, plows from 312 to 76, harrows from 589 to 38, and saved 600,000 barrels of flour by improving bread marketing methods. When the armistice was signed in 1918, the conservation division of the War Industries Board had prepared conservation programs for 269 industries. It was estimated that these programs

would yield an annual saving of 15 per cent in the quantity of materials used in the United States.[2]

One great and lasting effect of the war-time efforts toward standardization was the interest created in such work and the undeniable proof of the advantages and possibilities of standardization when put on a national basis. In the words of Mr. Whitney standardization proved to be "the liberator that relegates the problems that have been already solved to their proper place, namely, to the field of routine, and leaves the creative faculties free for the problems that are still unsolved. Standardization from this point of view is thus an indispensable ally of the creative genius." [3]

3. EFFECTS OF THE POSTWAR SITUATION

Upon the termination of the war the controlling hand of the Government was withdrawn under an order of the War Industries Board dated December 1, 1918. The industrial depression of 1921 aggravated conditions to such an extent that effective methods of relief were demanded. The valuable lessons of war-time standardization were still strong in the minds of many executives and the need of nation-wide efforts toward elimination of waste was clearly evident. The Federated American Engineering Societies, through its president, Herbert Hoover, appointed a committee which undertook a careful survey of the wastes in several important industries, and in 1921 published their findings in a report entitled, "Waste in Industry." The startling disclosures made in this report, together with the favorable publicity it received, served as a great impetus to lagging efforts toward more efficient management of industry. Trade associations were formed, engineering societies united their efforts for further standardization, and chambers of commerce organized committees to improve business relations. The Federal Government gave assistance to the movement by centralizing its widespread purchasing activities and by cooperating directly with industry in the development of Federal purchase specifications and waste elimination programs.

4. SIMPLIFIED PRACTICE

One of the principal activities toward the elimination of avoidable waste undertaken by the Department of Commerce at the request of industry was that of simplification. The division of simplified practice was organized in December, 1921, for the purpose of assisting industry to find a practical limitation of the numerous varieties of size and type in which many commodities were manufactured. Its activities are confined solely to considerations of size, variety, and trade demand. Strictly speaking, simplified practice is not standardization, but it is so closely allied that the terms are sometimes interchanged, although they are not synonymous.

A simplified practice recommendation is based principally on the results of a statistical survey of existing varieties of size and type and the trade demand for each. Such surveys often show that 80 per cent of a business is carried on with only 20 per cent of the varie-

[2] Stuart Chase, "The Tragedy of Waste," The Macmillan Co., New York. pp. 8-9; 1925.
[3] Albert W. Whitney, The Place of Standardization in Modern Life, Annals of The American Academy of Political and Social Science, p. 35; May, 1928.

ties. Figure 1 illustrates a more extreme condition. The result is a revised schedule of sizes and types, accepted by manufacturers representing at least 80 per cent of the production in the industry. These manufacturers concentrate their efforts on the simplified schedule, thus putting the simplified varieties more firmly on a large production basis and encouraging their use by featuring them in catalogues, carrying them in stock, and giving quicker service.

In the first eight years no less than 115 simplified practice recommendations were issued and enthusiastically indorsed by industry. The reduction in stock items resulting from the acceptance of these recommendations has averaged over 70 per cent in the lines covered in the building and construction material industries alone. Reductions of over 90 per cent have been noted in some individual lines.

It was evident during the development of some of the simplified practice recommendations that more and greater benefits could be derived from certain projects if the simplification were supplemented by quality standards. Some industries requested such supplementation of simplification by grade or quality standardization. Accordingly, several early simplified practice recommendations incorporated grading rules, definitions, nomenclature, and even specifications, as illustrated in such recommendations as those for builders' hardware, vitreous china plumbing fixtures, and others. Thus, in several branches of the work the grade and quality elements were introduced voluntarily by the industries themselves.

5. COMMERCIAL STANDARDS

What is a commercial standard? Does it differ from standards of the engineering societies or trade associations? If so, in what way? These searching questions penetrate the heart of the subject and their answers are illuminatory and helpful alike to the purchasing agent, the wholesale or retail distributor, the producer, the engineer, the architect, and the advertiser. They point the way to solutions of some of the most perplexing problems facing commerce in this day of unprecedented variety and complexity of commodities.

The buyer, whether acting for a large corporation, a department store, or a single family, is confronted with a bewildering variety of product, prevalent propaganda, clever claims, glittering guarantees, salient sales talks, and adulant advertising, which are difficult to evaluate. How can he compare quality or value with any degree of safety or assurance? Whether he plans to purchase a carload of sheets for a group of hotels or a clinical thermometer for the home, where and what is the yardstick for quality?

The producer is continually puzzled to keep his good ship on a safe course away from the torpedoes of cut price and lowered quality. How can a steady business be built up which will carry through periods of depression on assured market and stable values?

The great competition to-day is between industries, and it is natural, therefore, that members of a given industry desire to set up a minimum quality level for their commodity in order that the public may buy with assurance and confidence and that the commodity as a whole shall retain the good will, and command the respect, of the purchaser. When there is an exact specification measuring competition, established in a way to command respect, accepted and recognized by producers and consumers alike, thoroughly broadcast, readily available,

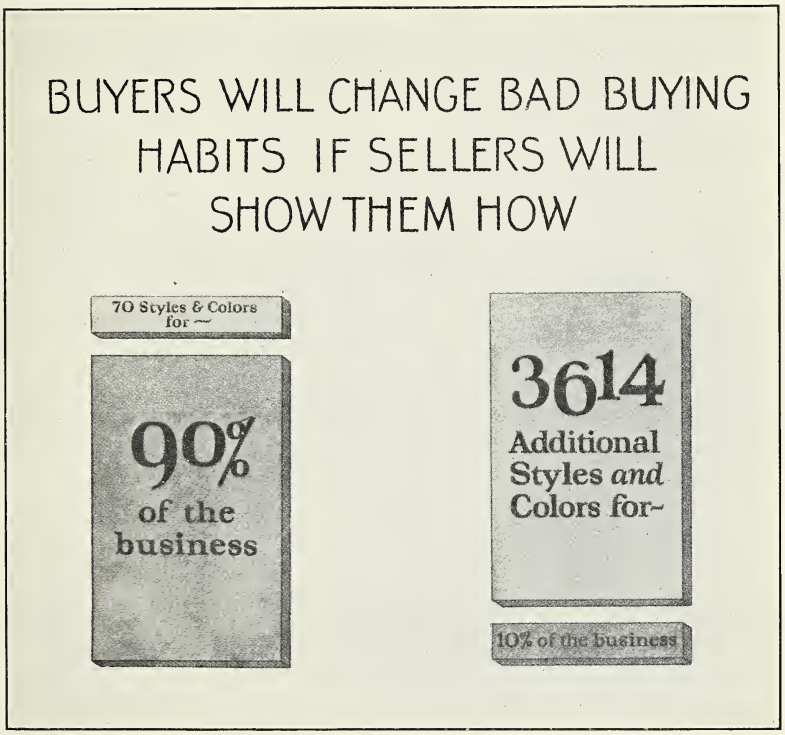

FIGURE 1.—*A typical condition of excessive variety*

and regularly used as a basis for daily trade—in other words, a commercial standard—it naturally becomes the yardstick of quality for that commodity. This can be arranged quite effectively through the assistance of the commercial standards service.

In October, 1927, as an outgrowth from simplified practice, the bureau set up a procedure for the cooperative establishment of definite grades and qualities on given commodities as commercial standards. This segregation of the work made it possible to render a better service to industry by concentrating on the particular phases of the problem which are presented and the special difficulties which confront an industry.

It may be well to differentiate between simplified practice and commercial standards more fully. Simplified practice is the elimination of excess or unnecessary variety of sizes, dimensions, types, and immaterial differences on the basis of production and demand, whereas commercial standards are specific limitations below or beyond which the grade, quality, composition, or dimensions of a commodity shall not be allowed to fall. A commercial standard has been defined as a commodity standard which industry wants; that is, one on the basis of which the manufacturers want to produce, the distributors want to stock, and the consumers want to buy. All of the procedure steps arranged to promote the establishment of commercial standards are designed to attain this result.

One outstanding purpose of commercial standards is to facilitate, for the small as well as the large purchaser, the specification method of buying and to make that effective as far as practicable without constant resort to tests. The organization in charge of commercial standards was first known as the commercial standards unit, but the value of the service was so apparent to industry and the demand for the service increased so rapidly that in July, 1929, it was recognized under the broader title, "division of trade standards."

II. NECESSITY, SCOPE, PURPOSE, AND APPLICATION OF COMMERCIAL STANDARDS

1. ECONOMIC NECESSITY

Any analysis of our economic situation is bound to reveal certain facts and obvious trends in the commerce of 1930. With increased leisure our people are devoting more time and attention to careful and judicious expenditure. There is more shopping around for greater values and better bargains, not only among the women who buy for the individual family, but among the professional purchasing agents who contract for the materials used and fabricated by our large industrial organizations and institutions. With greater purchasing power, increased travel, and speedier means of communication our people are demanding higher quality and are looking for some dependable guide to aid their judgment. Every known article possessing outstanding or unusual quality is enjoying a large demand.

In the present perplexing market of novelties and color the consumer-buyers, and even the professional purchasing agents are reporting it increasingly difficult to distinguish between items of real merit and inferior products built for appearance only. It is natural, therefore, that the consumer-buyer and the purchasing agent are both seeking authoritative and dependable criteria of quality, and

are welcoming certificates from reputable producers that the quality of the goods equals or exceeds the commercial standard specification.

Among the producers, competition was never keener. In the ever widening arena of strife for a share of the consumer's dollar, companies are merging and individual producers are forming associations to wage the contest of industry against industry as being more significant than the private battle of producer against producer. The alert trade association seeks a means of assuring purchasers of the inherent quality of the proffered goods. Individual trade-marks and trade association labels are helpful, but frequently are not sufficient to satisfy the skepticism of the modern purchaser who demands to be shown, with laboratory analyses and methods of test, the quality of goods delivered. In general, it may be said that the producers are experts in their own commodity field, but seldom is the consumer given the full benefit of this knowledge. Usually the producers as a group could, if they would, inform the consumer as to the grade or quality best suited to his needs with far greater accuracy and confidence than the consumer could possibly muster from any other source. Under present conditions this group knowledge is suppressed and the tendency is all too frequent to give the buyer merely what he asks for.

More and more the view of the Secretary of Commerce, as expressed in his annual report for 1922 is being taken.

> Agitation has been current for many years for the extension of the Federal laws to the establishment of grades and qualities of different commodities. The lack of such established grades and standards of quality adds very largely to the cost of distribution because of the necessity of buying and selling upon sample or otherwise, and because of the risk of fraud and misrepresentation, and consequently the larger margins in trading. It was considered by the department, however, that it would be infinitely better if such grades and qualities could be established voluntarily in the trades themselves instead of by legislation, and policed by trade associations as is the case in several old established trades.

The Chamber of Commerce of the United States agreed with this view as indicated by a circular letter signed by Julius H. Barnes, president of that organization, under date of January 10, 1923, which read in part as follows:

> *Voluntary action preferable to legislation.*—This topic of voluntary action of business men to establish definite grades for various lines of merchandise should be of especial interest to the organization members of the national chamber. Shoe manufacturers, textile manufacturers, and others have been worried by snap-judgment proposals to set up so-called "pure shoe" and "pure fabric," etc., standards by Government action. Of course, the reputable American business man is not afraid or unwilling to sell his goods on reasonably drawn specifications or to stand back of the quality of his product to a reasonable extent. There is nobody better qualified to pass on what is and what is not reasonable as a standard of quality or performance than those who are in the trade itself. Here, as Secretary Hoover points out, is undoubtedly a field for voluntary action on the part of producers, manufacturers, and merchants in establishing grades and setting standards of quality or performance, with which the consumers will be sympathetic.
>
> *Quality standards cut down commercial disputes.*—Business is facilitated and the ground for commercial disputes between buyer and seller is narrowed down if sales are made on a basis of standard grades of merchandise, perfectly familiar to both buyer and seller. This is a phase of business of particular importance in international transactions, where different trade practices and different conditions exist. In a good many foreign countries there has been loss of good will for particular American dealers as well as some lingering prejudice to the good name of American business generally, which can be traced to the lack of understanding and agreement between buyer and seller as to the qualities entering

into transactions, or to the absence of standards of quality and performance. When such standards exist, backed up by the moral force of the trade association or trade group in the United States, the promotion of the sale of American merchandise of a given kind and the building of good will toward American trade abroad are made easier, and rest upon a sound foundation.

Albert W. Whitney, in speaking of the same situation, says:[4]

> What was needed was a modern substitute for custom and common law, a process that would produce a thorough harmonization of interests but in a limited period of time, kiln-dried custom so to speak. * * *. A standard to have the same effect as custom and common law must be the product of a meeting of minds in which all interests are represented, and out of which comes a genuine consensus, not the coercion of a minority by a majority.
>
> A standard made under these conditions has all the validity of custom and the common law itself. Having been made through a consensus of all interests concerned, it goes into effect almost automatically, for there is no one to oppose it; the problem of enforcement and administration is therefore reduced to a minimum.

These views well express the trend of thought among the progressive industrial leaders of to-day, and they also aptly outline the chief principles underlying the procedure for the establishment of a commercial standard.

The commercial standard, developed and established by industry itself under the careful and impartial eye of the Federal Government; accepted in writing by producers, distributors, and consumers alike; printed and promulgated by the Department of Commerce after very careful scrutiny; takes advantage of the expert knowledge of the producer and distributor groups; satisfies all of the ramifications of the situation and offers an authoritative and dependable basis for marketing and purchase by all elements directly concerned.

2. LIMITATIONS OF SCOPE

The first and most significant restriction is the present limitation of commercial standards to commodities which are bought and sold; that is, it is not at present contemplated that commercial standards will be applied to safety codes, drafting-room practices, symbols, methods of test as such, or trade practices. Rather it is expected that commercial standards will consist of specifications, nomenclature, definitions, grading rules, dimensional requirements, and tests as a means of determining and checking the quality of goods constituting the life blood of trade. Commercial standards by nature will be a compromise of the ideas held by representatives of different branches of the industry and may not be expected to represent perfection. However, they will constitute a step in the proper direction, and successive revisions will bring them closer to the ideal specification setting forth clearly the requirements desired by the user, checked by recognized tests, without restricting the ingenuity of the producer in the employment of new materials, processes, or methods.

3. FUNDAMENTAL PURPOSE

The chief purpose of the work is to catch and to hold from present or future retrogression commercial progress toward ideals of commodity quality and performance by encouraging the voluntary establishment of commercial standards as a basis for marketing. It is unthinkable

[4] Albert W. Whitney, The Place of Standardization in Modern Life, Annals of the American Academy of Political and Social Science, p. 37; May, 1928.

that the consumer will willingly relinquish nationally recognized means and methods of checking the quality and value of the goods he buys. Therefore, it is hoped that the commercial standard will act as a ratchet in the advance of sound merchandising methods.

The service is mainly promotional in character, since its chief missions are to get behind a standard or a specification which any industry or its related groups may want to promulgate on a nation-wide basis; to determine its eligibility for promulgation; to publish and broadcast it in the event the prerequisites of procedure have been met, including a satisfactory majority acceptance; to facilitate the application of the certification plan for the assurance and convenience of the small purchaser; to provide means for periodical audits of adherence; to cooperate with the Bureau of Foreign and Domestic Commerce, of the Department of Commerce, in determining the desire of industry relative to translation and promulgation of such specifications as a basis for foreign commerce; and otherwise to accelerate the effective use of the specification as a basis for daily trade.

4. FUNCTION OF THE DIVISION OF TRADE STANDARDS

The function of the division of trade standards in work of this character is fourfold: First, to provide a neutural agency which will insure adequate consideration of the needs of all interests; second, to supply such assistance and advice in the development of this program as past experience with similar programs may suggest; third, to solicit and record the extent of adoption and adherence to the standard; and fourth, to add all possible prestige to this organized effort to establish adequate standards by promulgation of the commercial standard if and when it is adopted and accepted by all elements directly concerned. The division also acts as a clearing house for directing suggested standardization projects into the proper channels, to avoid duplication of effort, and to correlate parallel plans.

5. RELATION TO OTHER STANDARDS

There is at least one essential difference between commercial standards and those specifications adopted by engineering and technical societies. The former are established as a basis for the daily needs of trade while the latter are intended mainly to cover purchase requirements for specific uses with the assumption that the items are regularly available, but without regard for the method of disposal of items rejected by such specifications. Experience indicates that in most commodities the proportion of goods purchased on specification has heretofore been small, and therefore the disposal of rejected items held of little economic significance. With the constantly increasing use of specifications as a basis of purchase, the importance of rejected items has risen to a controlling position. Commercial standards, unlike most other specifications, are designed as a basis for marketing for an entire industry and naturally must take into account or provide for the items which are rejected by the specification. In general, the line between acceptable goods and seconds is thereby materially widened, thus stimulating the industry to produce a greater and greater proportion of acceptable goods to obtain the surer rewards.

The commercial standards service is in no sense a duplication of the standardization activities of engineering and technical organizations or associations; its function is not the formulation or preparation of specifications, but rather the procurement of greater recognition and utilization, the determination of adherence to, and the furtherance of effectiveness of specifications adopted by such organizations and associations and approved by industry. Thus it will be seen that the service is mainly promotional in character for specifications selected by industry for adoption as a basis for daily commerce.

The division of trade standards cooperates with such standard-making bodies as the American Standards Association, the National Board of Underwriters, the American Society for Testing Materials, and others. In connection with the first, it is in position to act as sponsor for any completed commercial standards project if its approval as an American standard is desired.

III. THE COMMERCIAL STANDARDS PROCEDURE AND SERVICE

1. THE INITIATION OF A COMMERCIAL STANDARDS PROJECT

Any industrial group or individual company may request the cooperation of the Bureau of Standards in the establishment of a commercial standard. It is not necessary that the request come from an association or other trade organization, although experience indicates that standards sponsored by such organizations are more likely to be finally accepted than those proposed by single companies. The assistance and support of a trade organization is also of great value later in making the certification and labeling work effective. Should no trade organization exist, nonorganized groups may find in the division of trade standards just the coordinating aid they need. The request for cooperation usually comes from a group of producers, distributors, or consumers directly and sufficiently interested in the commodity to put forth some effort in its behalf. In initiating the work the proponent group is expected to assume certain responsibilities, such as the selection of the specification, the preparation of the tentative draft, attending preliminary conferences, supplying data, information, or advice as the situation may require. The Bureau of Standards makes no charge for this service. Industry, through Federal taxation, has already financed the work. It has been demonstrated that the service provides an opportunity for a direct return on the tax investment of producers, distributors, and consumers alike.

Upon receipt of the written request for cooperation the subject is assigned to a "project manager" who represents the Bureau of Standards in contacts with industry throughout the development of the project and is responsible for the proper conduct of the work. It is the duty of the project manager to seek out any broadly accepted specifications or standards relevant to the subject and report to the proponent group emphasizing the advantages of adopting an existing standard.

2. PRELIMINARY SURVEY

In the event pertinent data are lacking, the project manager, through the proponent group, conducts a preliminary survey of all available standards, those in process of formulation and existing

machinery for their preparation. This survey may also cover production figures, sales records of various types, grades, classes, finishes, colors, or other data pertinent to the project.

3. SELECTION OR FORMULATION OF THE SPECIFICATION

From the above data the proponent group selects or formulates a tentatively satisfactory specification as a starting point for further action. This may take the form of minimum measurements, tolerances, construction, chemical composition, physical requirements, or method of manufacture in the event it is not practicable to specify and test on a performance basis. The latter is generally preferable.

4. PRELIMINARY CONFERENCE

After a tentatively satisfactory specification has been selected or formulated a preliminary conference of leading members (all members when the group is small) of the proponent group is called to consider the acceptability of the specification from the point of view of the purchasers, distributors, or producers as the case may be and the probable reaction of the other interested branches of the industry.

For purposes of emphasis it may be well to repeat that the proponent group is usually limited to one branch of the industry—producers, distributors, or consumers—thus facilitating action and helping to correlate and to epitomize the desires of the group most eager to establish a commercial standard. This method tends to promote free and frank discussion of all ramifications of the standard and thus produces a firmer foundation for subsequent acceptance, certification, and labeling.

The preliminary conference is usually held under the auspices of the Bureau of Standards so as to admit both members and nonmembers of trade organizations in the field. It is sometimes necessary to hold several preliminary conferences, to appoint subcommittees, or to refer the entire subject to a standards-making body for formulation as it has been found particularly advisable to have at least the proponent group substantially in harmony before calling a general conference of all interests.

5. TECHNICAL REVIEW AND ADJUSTMENT

Acting upon the recommendations of the preliminary conference or the survey committee, agenda are prepared for a general conference of producers, distributors, organized consumers, and allied interests. Said agenda are then referred to the proper technical division of the Bureau of Standards for review to insure compatibility with the trend of most recent research and development in the art, with recommendations resulting from research or tests, as well as recommendations supported by various technical societies. When this review has been completed and such adjustments made as circumstances may warrant the agenda are then submitted to the proponent group for review and authorization to call a general conference of all interests.

6. GENERAL CONFERENCE—ADOPTION BY THE INDUSTRY

Following such authorization the Bureau of Standards forwards the agenda, including the proposed commercial standard, to all known manufacturers, distributors, organized consumers, and the interested

organizations with an invitation to attend a conference at a specific time and place, usually Washington, D. C. Frank criticism of the proposed standard is invited for presentation either in writing or in person at the general conference. This general conference considers what action is feasible and desirable regarding further distribution, broader promulgation, and application of the recommended standard, and votes to establish it, with any necessary modifications, as a "recommended commercial standard." It also appoints representative members of the industry to act as a standing committee through which all future contacts are made between the division of trade standards and the industry. A typical order of procedure is shown graphically in the chart. (Fig. 2.)

7. WRITTEN ACCEPTANCE

Verbal approval at the general conference is considered an insufficient authorization for publication as it is frequently necessary for a member of that conference to sell the idea to the other officers of his company before they recognize the benefits of adopting the commercial standard as a regular practice. It is also desired that no such fundamental changes in policy and marketing methods be established hurriedly or without due and careful deliberation by business executives in the atmosphere of their own offices. Therefore the Bureau of Standards disseminates the recommendations of the general conference with requests for written acceptances from each unit of the whole industry including manufacturers, distributors, and organized consumers.

A sample acceptance form is shown on page 13. The explanatory statement, which appears on the reverse side of the acceptance blank, is shown on the page following.

8. PUBLICATION

Upon receipt of signed acceptances representing at least 65 per cent of production or consumption by volume and provided there is no outstanding or active opposition, a circular letter is issued announcing the success of the project and the date upon which the commercial standard becomes effective. At the same time the manuscript is prepared for printing by the Public Printer. Upon release of the publication printed copies are distributed to all acceptors and to all who have cooperated in the work. Additional copies are made available at a very moderate price (usually 5 or 10 cents) through the Superintendent of Documents, Government Printing Office, Washington, D. C.

9. CERTIFICATION PLAN

The certification plan as applied by the Bureau of Standards to commercial standards consists in the compilation and distribution of lists of manufacturers who are willing, when requested, to certify to purchasers that products supplied by them comply with all the requirements and tests set forth in nationally recognized commercial standards. The plan is also applied to selected Federal specifications. These lists are available, on request, to individual consumers, consumer groups, companies, and in fact to any prospective purchasers, for their guidance. The benefits now derived from the use of specifi-

(Continued on page 15)

91559°—30——3

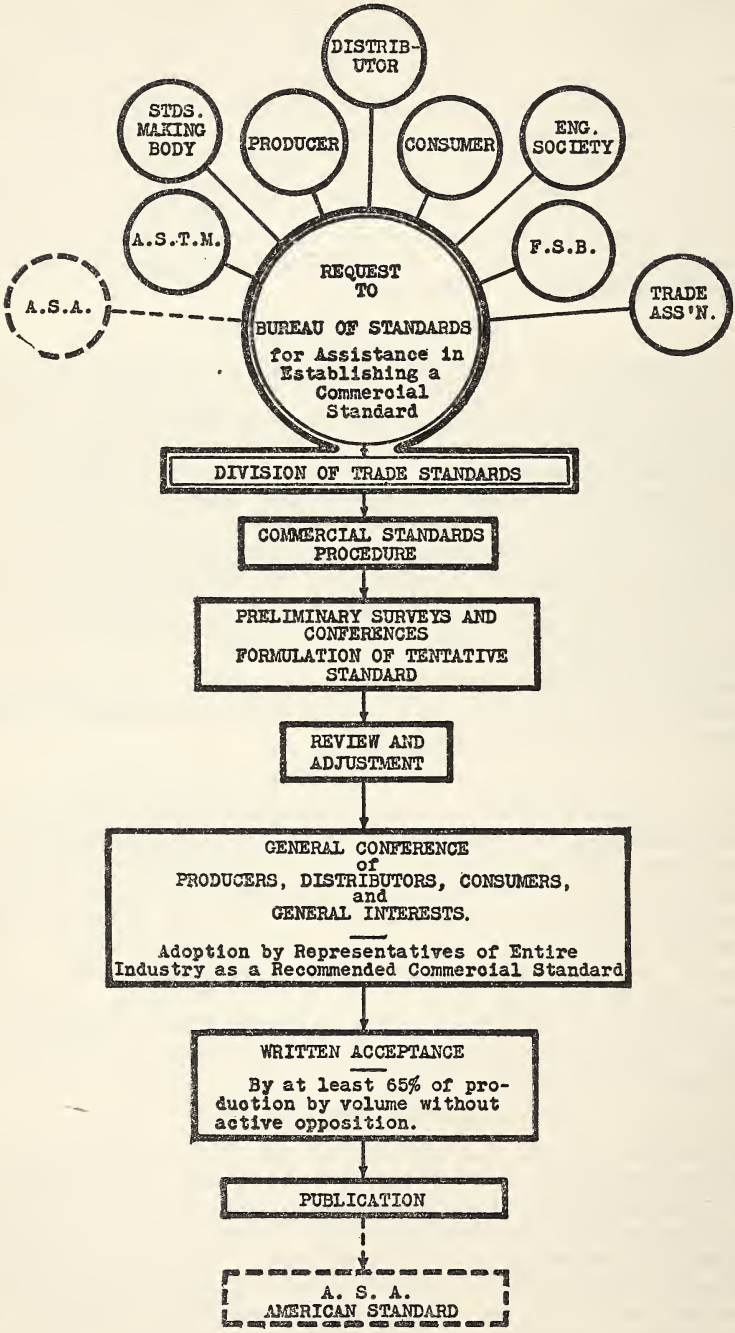

FIGURE 2.—*Typical development of a commercial standard*

[Sample acceptance form]

ACCEPTANCE OF COMMERCIAL STANDARD

Please sign and return this sheet to Division of Trade Standards, Bureau of Standards, Washington, D. C.

Date _____

DIVISION OF TRADE STANDARDS,
BUREAU OF STANDARDS,
Washington, D. C.

GENTLEMEN: We, the undersigned, do hereby accept the original draft of the commercial standard, as our standard practice in the {Production [1] / Distribution [1] / Use [1]} of _____ beginning _____, and will use our best effort in securing its general adoption.

To permit intelligent review of the effectiveness of the commercial standard every year by an accredited committee of all interests, working in cooperation with the Department of Commerce, we plan to supply all data, upon request, which may be necessary for the development of constructive revisions. It is understood that any suggested modifications will be submitted as soon as formulated and shall not be promulgated until accepted in form similar to this recommendation.

Signed _____

(Kindly typewrite or print the following lines)

Title _____

Company _____

Street address _____

City and State _____

We are members of the following associations or other organizations interested in the production, sale, or use of _____:

_____

_____

_____

[1] Please designate which group you represent by drawing lines through the other two. In the case of related interests, trade papers, colleges, etc., desiring to record their general approval the words "In principle" should be added after the signature.

[Sample reverse of acceptance form]

TO THE ACCEPTOR

In signing the acceptance blank, please bear the following points clearly in mind:

1. *Adherence.*—The Department of Commerce has no regulatory powers to enforce adherence to the commercial standard. Instead, this waste-elimination program is based on voluntary cooperation and self-government in industry. To make this specific standardization operate as a satisfactory example of self-government, it is highly desirable that it be kept distinct from any plan or method of governmental regulation or control. It will be successful according to the degree to which manufacturers, distributors, and purchasers adhere to its terms and conditions.

2. *The industry's responsibility.*—The department cooperates only on the request of the industry and assumes no responsibility for industrial acceptance or adherence. This program was developed by the industry on its own initiative. Its success depends wholly on the active cooperation of those concerned.

3. *The acceptor's responsibility.*—You are entering into an entirely voluntary arrangement whereby the members of the industry—the distributors and consumers of the product, and others concerned—hope to secure the benefits inherent in commercial standardization. Those responsible for this standard realize that instances may occur in which it will be necessary to supply or purchase items not included therein. The purpose is, however, to secure wider support for nationally recognized standards covering grade, quality, and other characteristics of products. *Consumers* can make the program a success if, in their purchasing they will make a definite and conscientious effort to *specify in terms of this commercial standard.*

4. *The department's responsibility.*—The function performed by the Department of Commerce is fourfold: First, to provide a neutral agency which will insure adequate consideration of the needs of all interests; second, to supply such assistance and advice in the development of this program as past experience with similar programs may suggest; third, to solicit and record the extent of adoption and adherence to the standard; and fourth, to add all possible prestige to this standardization movement by publication and promulgation if and when it is adopted and accepted by all elements directly concerned.

cations by large consumers are thus made immediately available to the small consumer, with the incidental advantage to larger consumers of convenience in ordering and accepting material with fewer laboratory tests, and broadening the field of supply. The manufacturer, within reasonable limits, also benefits from the well-known economies accompanying "mass production."

The list of manufacturers "willing-to-certify" to the quality of certain commodities are made by corresponding with, as nearly as possible, all the manufacturers of that product and listing only those who signify their willingness to certify to the purchaser, when requested to do so, that the commodities delivered actually comply with the commercial standard. Obviously, the purchaser making use of the lists of "willing-to-certify" manufacturers, will select therefrom such manufacturers as are known (or assumed) by him to be

FIGURE 3.—*Label used for wallpaper*

reliable. The trend toward the purchase of materials of certified quality from sources shown on such willing-to-certify lists furnishes added incentive to standardization on the part of other producers, and thus the benefits of the certification plan should be felt by purchasers either directly or indirectly, whether or not they make use of the plan themselves.

10. LABELING

Manufacturers are also encouraged to apply self-certifying labels, such as illustrated in Figure 3, to the commodity guaranteeing the quality or measurements to conform to all requirements and tests of the commercial standard. In the event the goods are of such a nature as to inhibit the direct use of "guarantee" labels, a registered symbol may be employed as a certification of quality when supported by

full "guarantee" labels on the cartons or other container in which the commodity is delivered to the consumer.

11. TRANSLATION FOR EXTENSION OF FOREIGN TRADE

With the cooperation of the Bureau of Foreign and Domestic Commerce of the Department of Commerce, an opportunity is provided for the translation and official publication of the commercial standard in other languages as a basis for the extension of foreign commerce through the foreign trade representatives. This is particularly useful in those fields where potential foreign markets are known to exist.

12. AUDITS OF ADHERENCE

In order to determine the extent of actual application and effect of the commercial standard, periodical (usually annual) audits of adherence are conducted. Producers are requested to report relative production and sales based on the commercial standard and specials in the same field. The survey also requests definite data indicating savings or benefits which have resulted from the establishment of the commercial standard as well as any need for revision. These data are summarized and reported to the "standing committee" and announcement of results is issued to the trade papers.

13. STANDING COMMITTEE AND REVISION

The standing committee, appointed by the general conference, is responsible for carrying on the aims and desires of the industry in the standardization of their product. This committee consists of members from each division of the industry, namely, producers, distributors, and consumers, and thus reflects the well-balanced viewpoint of all concerned. The members of the committee receive all suggestions regarding the commercial standard and consider its revision in the event that such action is desirable and mutually beneficial. If the commerical standard does not require revision, it is reaffirmed in its existing form, but if any important changes are found desirable, their adoption is recommended by the committee, whereupon the industry is again solicited for written acceptance of of the standard in its revised form. The committee is, in effect, a centralizing agency for criticisms and comments regarding the commercial standard and is charged with the responsibility of recommending revisions to keep the standard abreast of current industrial practice. It also receives reports on departures from the commercial standard. The last two figures in the identification number signify the year in which the commercial standard is made effective, thus distinguishing revisions from earlier issues.

IV. EXAMPLES OF COMMERCIAL STANDARDS

1. CLINICAL THERMOMETERS

The manufacturers of clinical thermometers requested the Bureau of Standards to assist them in setting up a standard to be used as a basis for sale and certification of reliable clinical thermometers. At a general conference of representatives of laboratories, manufacturers, distributors, and users of clinical thermometers, a commercial stand-

ard was adopted which surpassed in many respects the requirements of the Federal Government and many States and municipalities. It became effective for new production October 1, 1928, after having been accepted by the principal users and producers. Printed copies may be obtained from the Superintendent of Documents, Government Printing Office, Washington, D. C.

A commercial standard clinical thermometer must comply with certain requirements definitely and completely set forth in the commercial standard specification. The requirements cover (*a*) construction, in which quality of glass, appearance, marking, and details of graduation are specified; (*b*) character of pigment, in which a test is required to determine the resistance of the pigment to removal by disinfecting solutions; (*c*) test for entrapped gas; (*d*) hard shaker test; (*e*) retreat test, to determine whether the constriction in the bore is properly made; (*f*) accuracy, in which the maximum allowable errors in registration are specified with the method of determining them; (*g*) ageing for four months, chiefly to guard against changes in the constriction; and (*h*) a certificate as shown below which shall accompany each thermometer to guarantee compliance with the requirements.

---------- (Place) (Date)

We, the undersigned manufacturers, hereby certify that our registering clinical thermometer marked No. ____ will meet all of the requirements and tests as specified in the United States Department of Commerce Commercial Standard CS1–28 for Clinical Thermometers.

---------- (Company)

Each clinical thermometer is an individual instrument, requiring special graduation and subject to errors peculiar to itself because no adjustments can be made after sealing in the mercury. In order to guard against inaccurate and unreliable clinical thermometers, many institutions test every thermometer they use. Varying methods of testing and varying requirements of accuracy and construction were used. Manufacturers were not only required to make good the rejected thermometers, but considerable expense was involved in the diversified testing and marking for purchasers.

With the commercial standard as a basis the manufacturers are now able to produce thermometers that are acceptable to almost every user, and the signed certificates reduce the need for much of the testing by consumers. The commercial standard requirements are based on the proper normal use of a clinical thermometer, may be readily met under the usual conditions of manufacture, and form a definite and fair basis for competition in the industry.

2. SURGICAL GAUZE

The commercial standard for surgical gauze was an outgrowth from the development of Simplified Practice Recommendation No. 86 for Surgical Gauze. The principal aims in requesting the commercial standard were to eliminate the practice of loading surgical gauzes so as to obscure the cotton content; to specify the minimum weight of cotton per yard for each construction; to put bidding on a comparable basis, and to insure delivery of satisfactory material.

The commercial standard was prepared by a committee of producers closely following the Federal specification, setting up minimum re-

quirements for bleached and unbleached surgical gauze. A general conference of representatives of producers, hospitals, and druggists adopted it with minor changes. It was to become effective May 1, 1929, but, although accepted by a large number of hospitals, distributors, and manufacturers, the reluctance of certain producers to accept the standard rendered it inadvisable to promulgate it in its existing form as representing the consensus of the industry, and it was therefore indefinitely postponed on August 1, 1929. Mimeographed copies will continue to be available for those users who may wish to use it as a basis for purchase.

3. STODDARD SOLVENT (DRY CLEANING)

The dry-cleaning fluids formerly used by cleaners were petroleum distillates which varied from highly inflammable (low flash point) gasolines to fluids akin to kerosene, both of which are unsatisfactory for dry-cleaning purposes. In view of the difficulties experienced by the dry cleaners in obtaining a suitable solvent, and of the fire hazard often resulting in property damage and loss of life, the National Association of Dyers and Cleaners conducted an intensive research on the problem at the Bureau of Standards, and a recommended specification for a comparatively safe dry-cleaning solvent was announced in May, 1925. Following trial and adjustment the specification was accepted by a large majority of producers and users as a commercial standard and became effective March 1, 1928. The use of the certification plan, with the commercial standard as the basis for its operation, was approved. A willing-to-certify list contains the names of over 20 firms. More names are being added from time to time.

The commercial standard covers nine requirements based on (1) appearance, (2) color, (3) odor, (4) flash point, (5) corrosion test, (6) distillation range, (7) acidity, (8) doctor test, and (9) sulphuric acid absorption test. The minimum flash point is set at 100° F., and the distillation range requirement states that "not less than 50 per cent shall be recovered in the receiver when the thermometer reads 350° F. The dry or end point shall be not higher than 410° F. No tolerance shall be allowed over 410° F." The methods of inspection and testing are identical with standards of the American Society for Testing Materials and Federal specifications.

4. STAPLE PORCELAIN (ALL-CLAY) PLUMBING FIXTURES

This commercial standard sets up nomenclature, definitions, and grading rules for porcelain ware considered as standard quality by the industry. Besides quality of ware as determined by appearance, finish, and freedom from defects, the commercial standard gives standard roughing-in measurements in order to assist in the design and construction of buildings and to relieve many difficulties surrounding the installation of work by the plumber. These dimensions are shown on sketches in the printed pamphlet, and the varieties retained as staple are also indicated.

The commercial standard covers 28 varieties of stall urinals; 15 varieties of sinks; 14 varieties of laundry trays, including sink and tray combinations; 8 lavatories; and 22 baths and receptors. These 87

varieties constitute a full line of stock varieties and represent an 86 per cent reduction from the 622 varieties formerly manufactured. It is recognized that minor blemishes and defects in material of this nature are unavoidable, and within certain limitations do not affect the value or utility of the fixture. Methods of grading are given for each type of ware and the maximum blemishes allowable on regular selection ware are listed.

All ware conforming to the requirements of the commercial standard is labeled only at the factory and no name, brand, or label other than that of the manufacturer is used. The label includes the following certificate:

Porcelain (all-clay) regular selection

We certify that this porcelain (all-clay) plumbing fixture conforms to regular selection in accordance with grading rules incorporated in Commercial Standard CS4–29 adopted by the industry in cooperation with the Bureau of Standards of the Department of Commerce.

No labels whatever are used on cull ware (that is, ware grading below regular selection), but such ware is marked with two small dots cut through the glaze at specified locations and filled with red ink or enamel. Crates containing cull ware are also marked with two splashes of red in a conspicuous place to avoid tearing down stacks for identification purposes during shipment or inventory of the ware.

5. STEEL PIPE NIPPLES

Many pipe nipples formerly on the market were made from second-hand or junk pipe, improperly threaded and of insufficient strength. While there is a limited field for fittings of low quality, the usual service to which piping is subjected requires certain very essential qualities. This commercial standard has been adopted to assist in preventing the use of low quality nipples where not desired. The commercial standard has been in effect since January 1, 1929. In general, the requirements are that nipples be made only from tested new pipe, of full weight, and in first-class condition which conforms to the A. S. T. M. tentative specification A120–28T. Tolerances for weight and outside diameter are given as well as detail inspection tolerances. Tables are included giving dimensions and weight of standard weight, extra strong, and double extra strong pipe from which the nipples are to be made. Threads are required to conform to the latest issue of the American Standard for Pipe Thread B–2, of the American Standards Association, and a table of standard pipe thread dimensions is given. Tables giving the stock sizes and packing list of nipples are included for convenience.

6. WROUGHT-IRON PIPE NIPPLES

This is similar in all respects to Commercial Standard CS5–29 and has the same effective date. Printed copies are also available. Pipe from which wrought-iron nipples are to be made must conform to the A. S. T. M. specification for Welded Wrought-Iron Pipe A72–27. Figure 4 illustrates how a number of manufacturers of pipe nipples certify to complete compliance with the specifications.

7. STANDARD WEIGHT MALLEABLE IRON OR STEEL SCREWED UNIONS

This recommended commercial standard describes a minimum quality for standard-weight malleable iron or steel screwed unions. It was adopted primarily to forestall two tendencies apparent in the industry; first, an increasing number of inferior specifications for such unions prepared by users and, second, attempts to bring out lighter and lighter unions by manufacturers. It follows Federal Specification No. 393 for Unions, as this specification was widely used and had proved very satisfactory. It was slightly modified so as not to exclude any union which had demonstrated its ability to satisfy the usual service requirements. The application of the certification plan was indorsed by the general conference. The specifications cover brass seated unions in black or galvanized finishes. The hot-dipped process is specified for galvanizing. The dimensions cover only the cross section of the brass seat ring and the total length of the union. Tensile tests are required as a check on the design and to insure a union that will be fully as strong as the pipe. An air-pressure test of representative unions from each lot is also required to detect poor workmanship or porous metal. The designation "standard weight" is used rather than "250-pound" in classifying such unions as they are to be used only with standard-weight pipe, and confusion is thus avoided with pressure classifications for cast-iron and malleable-iron screwed fittings. Slight changes have been suggested since adoption at the general conference, and at this writing these changes are awaiting acceptance before promulgation and printing.

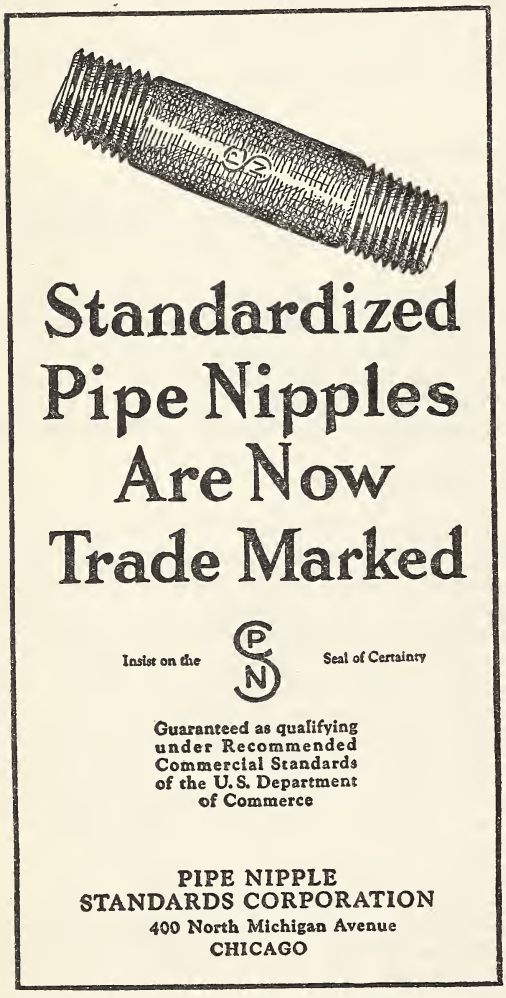

FIGURE 4.—*A self-certifying trade-mark used on pipe nipples*

8. BUILDERS' TEMPLATE HARDWARE

The increasing use of hollow metal doors and trim has made necessary a wider application of the construction standards which their use entails. This need has prompted the industry to request the Bureau of Standards to assist their trade association in securing more general recognition of standards as well as to assist in the consolidation of a number of conflicting standards in use. The principal object is to facilitate the application of locks and hinges to hollow metal doors and frames, as provisions for attaching such fittings must be made in the process of manufacture. A recommended standard has been adopted and submitted to the industry for acceptance. The recommended commercial standard specifies the maximum dimensions of lock cases for hollow metal doors as 5¾ by 4¼ by ⅞ inches and minimum dimensions of 5 by 3¾ by ¾ inches with a backset of 2¾ inches. Template dimensions and tolerances for the lock front and strike are given. Template dimensions for full mortise, full surface, half mortise, and half surface butts are included with template identification symbols, tolerances, and clearance for painting.

9. BRASS PIPE NIPPLES

Brass being a variable material is subject not only to differences in composition, but to variations in process of manufacture which may affect its quality. In order to improve marketing conditions in the brass pipe nipple industry and to provide a definite basis for submitting bids, the manufacturers requested the Bureau of Standards to assist them in setting up a standard on which quality certification could be based. The standard was prepared by a committee of producers and was adopted with several minor modifications by a general conference of representative producers, users, and general interests. The industry has accorded satisfactory acceptance. The commercial standard specification as recommended to the industry requires that all commercial standard brass pipe nipples be made from tested new brass pipe free from all defects which might affect its serviceability. As a definite guide to the quality of pipe required, detailed weights, dimensions, and tolerances are given for all sizes of pipe from one-eighth to 10 inches diameter. A table of standard stock sizes is also given. This commercial standard is available in printed form. A willing-to-certify list may be obtained from the Bureau of Standards upon request.

10. REGAIN OF MERCERIZED COTTON YARNS

The question of moisture content is an ever present one in the textile industry. Since most yarns are sold by weight, and since the moisture content varies the weight, the problem immediately resolves itself into one of dollars and cents. The interest in moisture content seems to bear a direct relation to the price of the material; that is, the higher the price, the more important is moisture content. Some earlier attempts were made in the cotton industry to establish a similar standard, but the necessity for it, because of the low cost of cotton, has not been great.

In mercerized cotton yarns, however, a decided demand for a standard for moisture content and regain has been indicated. The hosiery producers, by reason of the enormous quantity of mercerized

cotton yarn used, sponsored a study of the moisture content of mercerized cotton yarns of various types. The work was carried on by the research associateship maintained by the National Association of Hosiery and Underwear Manufacturers at the Bureau of Standards. Upon completion of the work the association requested the assistance of the Bureau of Standards in establishing the results as a commercial standard to provide a definite basis for weight adjustment between buyer and seller. The commercial standard was adopted at a general conference of representative manufacturers, mercerizers, general interests, and users, and has been widely accepted by the industry. The commercial standard defines "moisture content" and "regain," and designates the regain basis to be 8½ per cent, equivalent to 7.83 per cent moisture content. No adjustment is to be called for, however, unless the regain is below 7½ per cent or above 9½ per cent. The basis of 8½ per cent is the same as that used in England and other foreign countries.

11. DOMESTIC AND INDUSTRIAL FUEL OILS

The great variation in the properties of fuel oils renders it impractical to design a burner that will burn all grades satisfactorily. Users of oil-burning equipment often experienced much difficulty in obtaining the proper grade of oil as no definite requirements for any particular grade existed. Most purchases were based on the specific gravity of the oil, a property now considered of no practical value in indicating the essential characteristics, which are distillation range, viscosity, and flash point.

The American Oil Burner Association requested the Bureau of Standards to assist them in setting up standard grades of fuel oil and establishing them on such a basis as to permit certification of quality to the consumer. A tentative specification for six grades of oil was drawn up by the association with the cooperation of the American Society for Testing Materials, the American Petroleum Institute, and individual oil refiners. This specification was made consistent with regular refining practices, and was recommended to the industry for acceptance as a commercial standard. Ample acceptance has been accorded. The effective date was July 1, 1929.

The six grades cover light, medium, and heavy oils for domestic and industrial oil-burning equipment. Grades Nos. 1 and 2 are, respectively, light and medium grades of a high quality distillate oil. Grade No. 3 is heavy domestic oil for use where a low viscosity distillate oil is required. Grades Nos. 4, 5, and 6 cover light, medium, and heavy industrial oils, the latter two corresponding to the United States Government master specification for bunker "B" and bunker "C" oil, respectively. The requirements for the domestic oils cover flash point, water and sediment, pour point, and distillation range. Maximum viscosity as given for grade 3 is 55 seconds, Saybolt Universal at 100° F. The maximum temperatures under the distillation test are for grade 1 at 10 per cent point, 420° F., at the end point, 600° F.; grade 2 at 10 per cent point, 440° F., at 90 per cent point, 620° F.; grade 3 at 10 per cent point, 460° F., at 90 per cent point 675° F. No distillation test is required for the industrial oils. The flash point and maximum water and sediment are specified, and also the viscosity which for grade 4 is 125 seconds Saybolt Universal at 100° F., and for grades 5 and 6, respectively, is 100 and 300 seconds

Saybolt Furol at 122° F. Testing is done according to either American Society for Testing Materials or Bureau of Mines methods and a brief statement of the significance of each test is included.

12. DRESS PATTERNS

A widely accepted commercial standard effective January 1, 1930, followed the cooperative efforts of manufacturers, distributors, and users of dress patterns toward a more uniform designation of pattern size. The principal aims are to facilitate the selection of patterns of the proper type and size, to minimize the necessity of alterations, and to contribute to more satisfaction in the use of dress patterns. The confusing classifications of pattern types formerly used are now standardized into eight groups, namely, ladies, misses, juniors, girls, children, infants, boys, and little boys. These form an overlapping series of sizes from 19 to 50 inches breast or bust measurements. For each size the key body measurements which that size is expected to fit are given. "Size" replaces the word "age" formerly used to indicate size in the juvenile groups. In the "ladies" group, the measurements covered are bust, waist, and hip. Similar measurements are given for the juvenile groups with the addition of height from socket bone to floor.

These measurements provide the pattern producers with a uniform basis on which to make allowances, such as for fullness, style, etc., without affecting the individual characteristics of the pattern. When buying patterns of different makes, the user is assured of suitable size whatever the brand, and need only consider the features of style or design variously offered. Standard widths of cotton, silk, and wool materials for pattern layouts are recommended, namely, 27, 32, 35, 39, and 54 inches.

13. WALL PAPER

The purchaser of a wall paper is seeking, along with its aesthetic appeal, one that will have a reasonably long life of usefulness, but unfortunately these qualities are not discernible upon casual inspection. Quantities of low-grade papers, therefore, find their way to the market which are serious competitors with quality papers in the show room, but in actual use are found to fade and discolor altogether too quickly. In order to induce their customers to choose a high-grade product and to provide the industry with an incentive to improve wall paper, the manufacturers plan to certify to customers that the quality of the paper exceeds definite minimum requirements. These requirements are now incorporated in a commercial standard, which has been widely accepted by the industry and became effective August 1, 1929. The quality of commercial standard wall paper is based on weight, color fastness, grounding, printing, and raw stock. Detail requirements for printed, plain, and embossed papers cover width and weight of raw stock, width of printed pattern, and length and coverage of a single roll. The colors must show no fading when exposed in a fadeometer for 24 hours. All papers must be grounded and the printing must be hard enough to prevent "crocking" or rubbing off. Methods of sampling and weighing are in accordance with the official methods of the Technical Association of the Pulp and Paper Industry.

14. DIAMOND-CORE DRILL FITTINGS

Diamond-core drills are used extensively by oil companies, mines, etc., often in remote sections of the country. Users of drilling outfits were often put to serious inconvenience and delay because the particular make of fittings required for their outfit could not readily be obtained. The manufacturers of these drills, wishing to facilitate the replacement or extension of equipment to lower stocks and to gain other advantages of standardization, decided to provide complete interchangeability of the similar parts produced by them. The Diamond Core Drill Manufacturers Association requested the assistance of the Bureau of Standards in their standardization program. The recommendations were prepared by the association and were adopted by a general conference of all interests after certain modifications were made. They have since been quite generally accepted by the industry.

The standard as adopted covers four sizes of drill rod and casing with their couplings and bits for obtaining cores approximately 2⅛, 1⅝, 1⅛, and ⅞ inches in diameter. Standard terminology and designating symbols are established to prevent confusion with other sizes and types. Detailed dimensions are given for the threaded sections of the fittings. Tolerances on thread dimensions are very close to insure interchangeability. For example, thread diameters on the drill rod have a total tolerance of 0.0005 inch, on the casing tolerances of 0.001 inch are permitted. The outside diameter of the bits has a total tolerance of 0.004 inch. The same tolerance applies to the inside diameter of the casing couplings. The manufacturers have requested the Bureau of Standards to prepare a willing-to-certify list in accordance with the regular certification plan.

V. BENEFITS AND SAVINGS

No definite study has been undertaken to determine the exact savings resulting from standardization. Much of the savings are due to fundamental and more or less intangible benefits which build up from year to year. The savings usually reported are for comparatively short periods covering isolated cases and incompletely defined conditions making them difficult to analyze and correlate. Nevertheless, many large industrial concerns are heartily in favor of standardization and have worked out extensive programs of their own. Their experience indicates that they benefit from standardization in one or more of the ways listed below. They also find that the benefits are increased by the wider use of standards. As the commercial standards service is dedicated to the nation-wide application of essential industrial standards of this character, it seems reasonable to expect that such benefits will be realized even more fully from commercial standards.

1. FOR THE PRODUCER

From the viewpoint of the producer, a commercial standard—

(a) AS REGARDS PRODUCTION

(1) Reduces waste in manufacture through—
  (*a*) Longer runs, less frequent change.
  (*b*) Higher rates of individual production.

(c) More accurate estimating for production.
(d) More effective stock control.
(e) Better and simpler inspection.
(f) Less equipment.
(g) Fewer raw materials.
(h) Cheaper handling of stock.
(i) Reduced overhead.
(j) Closer cost accounting.
(k) Improvement of design.

(2) Improves relations with labor by—
(a) Higher earnings through increased individual production.
(b) More permanent employment.
(c) Easier training of new employees.

(3) Increases turnover.

(4) Lowers selling cost.

(b) AS REGARDS MARKETING

(5) Increases his confidence by—
(a) Providing an honest, straight-forward openly-arrived-at, nationally recognized basis for daily trade.
(b) Setting a minimum limit or dead line below which quality shall not be allowed to fall.
(c) Creating a better understanding between buyer and seller thus reducing possibilities for error and litigation.
(d) Reducing the variety of specifications for the commodity.
(e) Steadying demand.
(f) Reducing laboratory tests.
(g) Providing safe basis for promoting foreign trade.

(6) Establishes a thoroughly recognized basis for certification of quality.

(7) Increases good will among customers due to—
(a) Certified quality of product.
(b) More prompt delivery.
(c) Reduced variety.
(d) Better quality of packing.
(e) More accurate labeling.

(8) Increases directness, forcefulness, and effectiveness of national advertising.

(9) Fosters and promotes self-government in business.

2. FOR THE DISTRIBUTOR

From the viewpoint of the wholesaler and retailer, a commercial standard—

(1) Increases confidence and good will by the same means as listed under producer viewpoint above.

(2) Lowers stock investment through reduced variety.

(3) Increases turnover by—
(a) Greater concentration of stock and sales effort.
(b) Stabilizing demand.
(c) Reducing obsolescence and depreciation.

(4) Reduces overhead due to—
(a) Handling.
(b) Accounting.

(5) Improves service by—
  (*a*) Quicker deliveries.
  (*b*) Easier replacement.

3. FOR THE CONSUMER

From the viewpoint of the purchaser, a commercial standard—
(1) Gives greater confidence and assurance of quality and quantity.
(2) Provides a definite and thoroughly-established basis for certification of quality.
(3) Provides better fitness and durability for a specific purpose.
(4) Insures easy replacement.
(5) Permits earlier deliveries and better service.
(6) Lowers prices as measured by value.
(7) Reduces inspection costs.
(8) Provides recognized basis for comparison of values.

4. SUMMARIZING ALL VIEWPOINTS

A simplified line, made according to a commercial standard for grade and quality, certified and labeled accordingly, backed by national advertising, should represent a maximum of practicable protection to the consumer and a reliable source of profit and good will to the manufacturer and distributor.

5. SAVINGS IN FOUR INDUSTRIES

Total savings to all elements of an industry—production, distribution, and consumption—resulting from the adoption of a commercial standard are largely intangible due to the nature of the benefits afforded, such as improved quality, increased good will, stabilization of trade, reduction of controversy, and lowering of marketing costs.

However, when, in addition to cost of production, various elements of distribution cost are analyzed, such as selling, handling, transportation, warehousing, depreciation, obsolescence, interest, and service; and when it is shown that these costs frequently exceed the total cost of production, it seems entirely conservative to estimate that the effective application of a commercial standard will yield savings of at least 5 per cent of the total retail value of the product. Statistics are not available for all of the industries which have adopted commercial standards, but the following figures from census reports for four such industries will serve to indicate the magnitude and significance of the work.

	Estimated value of production, 1927
1. Domestic and industrial fuel oils	$456, 959, 052
2. Stoddard solvent	68, 943, 123
3. Wall paper	30, 059, 153
4. Dress patterns	13, 782, 356
Total for 4 industries	569, 743, 684

Estimating a total saving of 2 per cent of the value of production, the financial benefits to these four industries from the adoption of commercial standards are in excess of $11,000,000 per year.

VI. QUESTIONS AND ANSWERS

1. ESSENTIALS OF COMMERCIAL STANDARDS

Question No. 1. What is a commercial standard?

ANSWER. A commercial standard is defined as a commodity standard covering grade, quality, dimensions, or tolerances, which industry wants; that is, one on the basis of which the manufacturers want to produce, the distributors want to stock, and the consumers want to buy.

Question No. 2. What are the primary functions of the division of trade standards?

ANSWER. The function of the division of trade standards is fourfold: First, to act as a referee to insure adequate consideration of the needs of all interests; second, to supply such assistance and advice in the development of the program as past experience with similar programs may suggest; third, to solicit and record the extent of adoption and adherence to the standard; and fourth, to add all possible prestige to the standardization movement by publication and promulgation if and when the commercial standard is adopted and accepted by all elements directly concerned.

Question No. 3. What is expected of the proponent group requesting such service?

ANSWER. The proponent group and its members are expected to be interested sufficiently to answer questions, supply data, prepare tentative draft of recommendation, give advice based on experience and to attend a few meetings as required at their own expense.

Question No. 4. Does the establishment of a commercial standard involve any fee?

ANSWER. No charge is made for the service except through Federal taxation. It has been demonstrated that the service provides an opportunity for a direct return on their tax investment by producers, distributors, and consumers alike.

2. COMPARISON WITH OTHER STANDARDS

Question No. 5. What is the essential difference between commercial standards and specifications adopted by engineering and technical societies?

ANSWER. The usual specification covers purchase requirements for certain uses with little or no concern for what may happen to rejected items or goods outside the limits of the specification. Commercial standards on the contrary are established to serve not only as a basis for purchase, but more especially as a basis for marketing for the entire industry and consequently must reflect all of the grades necessary in that industry, or form a part of a broader plan for marketing the essential grades, both standard and substandard. Frequently after group consideration of the entire field, it will be found best to convert or divert the substandard goods into other goods or channels. Thus commercial standards, unlike most specifications are established for the benefit of all divisions of a given industry rather than for a certain section.

Question No. 6. How do commercial standards differ from Federal specifications?

ANSWER. Federal specifications are prepared by committees of Government experts as a basis for official Federal purchases while commercial standards are voluntarily formulated and accepted by industry itself as a basis for daily trade. They may be consistent with one another but are not necessarily so.

Question No. 7. Are commercial standards likely to bring about similar requirements in Federal or purchase specifications?

ANSWER. Yes. The most difficult part of the preparation of Federal or other purchase specifications is to obtain an authoritative statement of the current practices and grades produced by the industry as a whole. The commercial standard adequately fills this need and makes it unnecessary for the specification writer to prepare an individual specification for material conforming to the commercial standard. The tendency of the specification writer is at once to adopt the industry's own specification for daily trade—the commercial standard.

Question No. 8. What is the difference between a commercial standard and an American standard?

ANSWER. The commercial standard is always a current standard based upon present knowledge and subject to frequent revision, while an American standard established by a more deliberate procedure is considered in some quarters to possess a higher status and a greater degree of permanence. When requested by the proponent group a commercial standard may be made an American standard under the procedure of the American Standards Association.

Question No. 9. How do commercial standards differ from simplified practice recommendations?

ANSWER. In general, it may be said that a simplification covers types, sizes, and varieties of a commodity which are retained by industry on the basis of demand, whereas a commercial standard establishes definite requirements as to grade, quality, or dimensional tolerances in addition to any limitation of variety desired and accepted by the industry.

3. BENEFITS

Question No. 10. What benefits may our industry expect to receive from the establishment of a commercial standard?

ANSWER. For benefits to the producer see page 24, for benefits to the distributor see page 25, or for benefits to the user see page 26.

NOTE.—To reduce the cost of printing, the lists of benefits are not repeated here.

Question No. 11. Will the commercial standard save me any money as a consumer?

ANSWER. Decidedly yes. Frequently there will be no immediate reduction in price, though this is brought about gradually through greater competition. Immediate savings, particularly on small deliveries, are brought about through increased quality, and the assurance that the goods delivered are up to the specification standard without necessity for, and accompanying delay and cost of laboratory tests. Price should not be confused with cost, which to the consumer, means the expenditure for net performance or utility per unit of time or service.

4. PROCEDURE

Question No. 12. Is the procedure for establishing commercial standards difficult or involved?

ANSWER. No, it is really quite simple, see Figure 2.

Question No. 13. What should we do first to obtain this service?

ANSWER. State your particular difficulties by letter or call at the bureau and discuss them with the division of trade standards.

Question No. 14. Must the request take any official or special form?

ANSWER. No, simply request our cooperation or assistance in your own words.

Question No. 15. Does our organization have to assume responsibility for complying with the various requirements of the procedure?

ANSWER. No, simply ask for cooperation and the Bureau of Standards will guide the procedure.

Question No. 16. Our industry needs standards, but where should we begin?

ANSWER. Examine your trade terms for the various grades; write specific definitions for each as a uniform guide to the entire industry.

Question No. 17. Are related technical and commercial organizations and associations consulted?

ANSWER. They are invited to criticize the proposed commercial standard while still in tentative form, to attend the general conference, and cooperate with other branches of the industry in modifying the draft to suit all elements directly concerned.

Question No. 18. How is an accepted institute specification made a commercial standard?

ANSWER. The institute or any member of the industry may submit such specification or standard for approval as a commercial standard, whereupon it will be subjected to the usual scrutiny and to such elements of the regular procedure as may be required.

Question No. 19. How long does it take?

ANSWER. The time required depends upon the cooperation rendered by the industry and the previous status of the specification. Certain projects have been adopted by the general conference in less than three months from the date of the original request. Procurement of written acceptances frequently requires two to three months or more after the general conference. Publication within 10 months or one year from the inception of the project may be regarded as good time considering the fundamental character and significance of such an undertaking.

5. ACCEPTANCE

Question No. 20. What is the form of acceptance each producer, distributor, and consumer is asked to sign.

ANSWER. The exact form of acceptance is given on page 13.

Question No. 21. Does my signature on the acceptance blank strictly limit my purchases or sales to the commercial standard grades?

ANSWER. No. You are entering an entirely voluntary arrangement whereby the entire industry will encourage, by all sensible means, the use of standard grades and qualities for mutual benefit and protection. It is realized that instances will occur in which it will be necessary to buy, supply, or introduce nonstandard items. The commercial standard is not intended in any way to stifle initiative or ingenuity in the betterment of any commodity nor to interfere in the

orderly conduct of commerce, but it should act as a ratchet to catch and to hold for all time the progress and efficiency already achieved.

6. PUBLICATION

Question No. 22. What are the minimum conditions under which the Bureau of Standards will print a commercial standard?

ANSWER. At least 65 per cent of production by volume must be represented by signed acceptances, with no outstanding or organized opposition from any quarter, before a commercial standard is printed. The percentage is set purposely low to allow for that portion of the industry which may be apathetic or which may wish to wait for a trial of the commercial standard without in any way opposing it.

Question No. 23. How many pamphlets are printed for free distribution?

ANSWER. Usually not over 2,500 copies are printed for official use and for free distribution.

Question No. 24. Can additional copies be obtained for further distribution by the industry?

ANSWER. Yes, trade associations and individual companies often distribute large numbers of the printed standard for the information and guidance of their members or customers. Additional copies may be obtained in quantities at cost from the Superintendent of Documents, Government Printing Office, Washington, D. C.

7. LABELING

Question No. 25. Can we refer to the Government publication on our guarantee labels?

ANSWER. Producers are encouraged to make a specific and complete reference to the official Government publication on all labels, tags, cartons, and sales literature certifying quality as conforming to the commercial standard requirements.

Question No. 26. Do you expect ultimate consumers to become familiar with the requirements of all these standards?

ANSWER. No. It is expected, however, that with the cooperation of associations of purchasing agents, women's clubs, and other consumer group organizations, the buyers will seek out goods bearing self-certifying labels guaranteeing a quality equal to or exceeding the commercial standard grade.

8. ADHERENCE AND POLICING

Question No. 27. Does the Bureau of Standards prepare lists of "willing-to-certify" manufacturers?

ANSWER. Yes. Upon request of the general conference the Bureau of Standards compiles and distributes lists of manufacturers who are willing, when requested to do so, to certify to purchasers that products supplied by them comply with all the requirements and tests set forth in nationally recognized commercial standards. These lists are available on request to individual consumers, consumer groups, companies, and in fact to any prospective purchasers, for their guidance.

Question No. 28. Are surveys of the industry conducted to determine adherence to the standards?

ANSWER. Periodical audits of adherence are conducted to determine the relative percentage of business done on the basis of the commercial standard, the advantages or disadvantages resulting there-

from, and the general effect upon the industry as well as any need for revision.

Question No. 29. How is conformity to the commercial standard policed in cases of willful departure?

ANSWER. The Bureau of Standards has no police powers in connection with commercial standards and desires none, therefore, such policing as may be necessary is done by the industry itself through trade association action and moral suasion. It is expected that goods sold merely on a price basis will be made conspicuous by the absence of the quality guarantee or self-certifying label and thus put the purchaser on his guard.

Question No. 30. Is there any legal redress against the producer who willfully sells substandard goods under a written guarantee or under a self-certifying label as conforming to the commercial standard?

ANSWER. Yes. It constitutes a breach of the sales contract and, therefore, may serve as a basis for legal action to recover damages.

9. REVISION

Question No. 31. How do you provide for revisions?

ANSWER. Provision for regular revision is made by the appointment of a standing committee to consider periodically any necessity for revision or extension of the commercial standard, in order that it may be kept constantly compatible with progress in the art.

Question No. 32. How frequently are commercial standards revised?

ANSWER. The necessity for revision is usually considered at least once a year, or more frequently if required.

10. FOREIGN TRADE PROMOTION

Question No. 33. How can commercial standards be used to stimulate foreign commerce?

ANSWER. Through the cooperation of the Bureau of Foreign and Domestic Commerce, commercial standards may be published in foreign languages by the Federal Government and circulated abroad through our foreign trade representatives as a proffered basis for future business.

VII. USE OF LABELS BY NATIONALLY RECOGNIZED ORGANIZATIONS

Among the agencies that are engaged in activities relating to the formulation of specifications, or the establishment of quality standards, manufacturing in conformity therewith and taking steps to insure compliance therewith are the following that make use of labels or their equivalent for this purpose:

American Corn Millers Federation has adopted a symbol to be licensed by the federation to all millers who will agree to conform to its specifications for corn meal.

American Gas Association has established a gas appliance testing laboratory and permits manufacturers of appliances approved by the laboratory as complying with the association's safety requirements to attach to the appliance the official approved seal of the association.

American Institute of Steel Construction (Inc.) permits its members who adhere to its code of standard practice to use the institute's symbol as a label for their commodities.

American Petroleum Institute grants to manufacturers the right to place its official monogram on certain standardized equipment upon certifying that the material so marked complies with the institute's specifications.

American Society of Mechanical Engineers permits manufacturers to place the A. S. M. E. symbol on a boiler complying with the requirements and tests of its boiler construction code.

Arkansas Soft Pine Bureau permits member mills to use the registered symbol of the association with stock grade marked in accordance with American Lumber Standards.

Associated Factory Mutual Fire Insurance Companies permits manufacturing firms to use the association's identification mark of approval on devices specifically approved by the association as to both design and construction.

Associated General Contractors of America enters into agreement with manufacturers in accordance with which concrete mixers complying with A. G. C. standards carry the name plate indicating this fact.

Associated Knit Underwear Manufacturers of America has adopted a standard mark, protected by law, to be used by manufacturers on garments made to conform to standard measurements recommended by the National Bureau of Standards.

Associated Tile Manufacturers has adopted a color scheme for grade marking and issuing certificates to accompany packages of white glazed tile and unglazed ceramic mosaic manufactured to comply with the simplified practice recommendation relating to this group of commodities.

Better Bedding Alliance of America was organized chiefly to encourage the truthful labeling of the filling contents of bedding and the discouragement of any misrepresentation of the product.

Canners League of California secured the adoption of a law requiring all canned peaches, pears, apricots, and cherries of a grade below certain approved standards to be marked with the word "seconds" embossed on the top of the can.

Commission on Standardization of Biological Stains issues certificates in the form of labels to be attached to bottles containing stains submitted to it and found to comply with its specifications.

Concrete Products Association issues certificates of quality to its members when it is found that their products meet the requirements of the American Concrete Institute standards.

Glycerine Producers Association permits members that follow the association's formula in manufacturing radiator glycerine to use the association's seal as a label to indicate the quality of their radiator glycerine.

Heating and Piping Contractors National Association has adopted a national insignia and certificate and also a boiler plate for the identification of heating plants complying with its specifications.

Interstate Cotton Seed Crushers Association dismisses from membership any of its members found guilty of misbranding or adulteration.

Malleable Iron Research Institute issues to manufacturers of products conforming to its specifications certificates which permit them to use the trade-mark of the institute in advertising their products.

Maple Flooring Manufacturers Association permits member firms to use the association's trade-mark on maple, beech, or birch flooring guaranteed by the association to comply with its grades and standards.

National Association of Finishers of Cotton Fabric licenses its members to use the association's label showing that goods to which it is applied comply with the association's requirements for fastness to light and washing.

National Retail Lumber Dealers Association permits its member companies to issue to purchasers certificates, underwritten by the association, guaranteeing that the material delivered conforms in grading with nationally adopted manufacturer's standards, and in quantity exactly with the invoice rendered.

Northern Hemlock and Hardwood Manufacturers Association has adopted a system of branding and grade marking whereby a member firm is assigned an identifying number and is licensed to use the association's brand to show that its lumber is graded in accordance with American Lumber Standards.

Paperboard Industries Association grants to its members the privilege of using its insignia in connection with the certificates used by manufacturers showing that boxes bearing these certificates conform to all construction requirements of the consolidated freight or the official express classification.

Periodicals, such as Good Housekeeping Magazine, Modern Priscilla, and Popular Science Monthly, have set up specifications for various lines of commodities, and issue the equivalent of certificates of approval in the form of labels for trade-brand articles meeting these specifications.

Pipe Nipple Standards Corporation (not a manufacturing firm, but made up of representatives of manufacturers) licenses manufacturers to use its registered trade-mark stamped on goods to identify pipe nipples manufactured to comply with its standards.

Porcelain Plumbing Fixture Manufacturers (advisory committee to the Bureau of Standards) issue labels certifying compliance with the commercial standards for porcelain plumbing fixtures.

Society for Electrical Development has inaugurated a so-called "red-seal plan" for identifying a house that is properly and adequately wired in accordance with approved specifications.

Southern Pine Association employs a staff of inspectors to visit the plants of its member firms who are permitted to place the mark of the grader on all lumber they make.

Steamboat Inspection Service of the Department of Commerce permits manufacturers to identify by labels, or advertising, devices built to comply with its requirements.

Tissue Paper Manufacturers Association authorizes its members to use the official label and seal of the association in guaranteeing packages of tissue paper to be in accordance with the simplified practice recommendation for this commodity.

Underwriters Laboratories, maintained by the National Board of Fire Underwriters, have prepared definite specifications relating to design details and performance characteristics of certain appliances and devices and licenses manufacturers receiving the required inspec-

tion and testing service to identify goods meeting its specifications by means of stamps, labels, or other markings.

Vitreous China Plumbing Fixtures Manufacturers (advisory committee to the Bureau of Standards) authorize manufacturers to employ labels for grade marking products complying with the simplified practice recommendations for this group of commodities. A label typical of those used by this group is illustrated in Figure 5.

FIGURE 5.—*Typical label used on regular selection vitreous china plumbing fixtures*

The Wallpaper Association of the United States has adopted an association trade-mark and label (see fig. 3) for use on the back of wall-paper samples, guaranteeing conformity to all requirements as specified by Department of Commerce pamphlet entitled "Wall paper, Commercial Standard CS16–29."