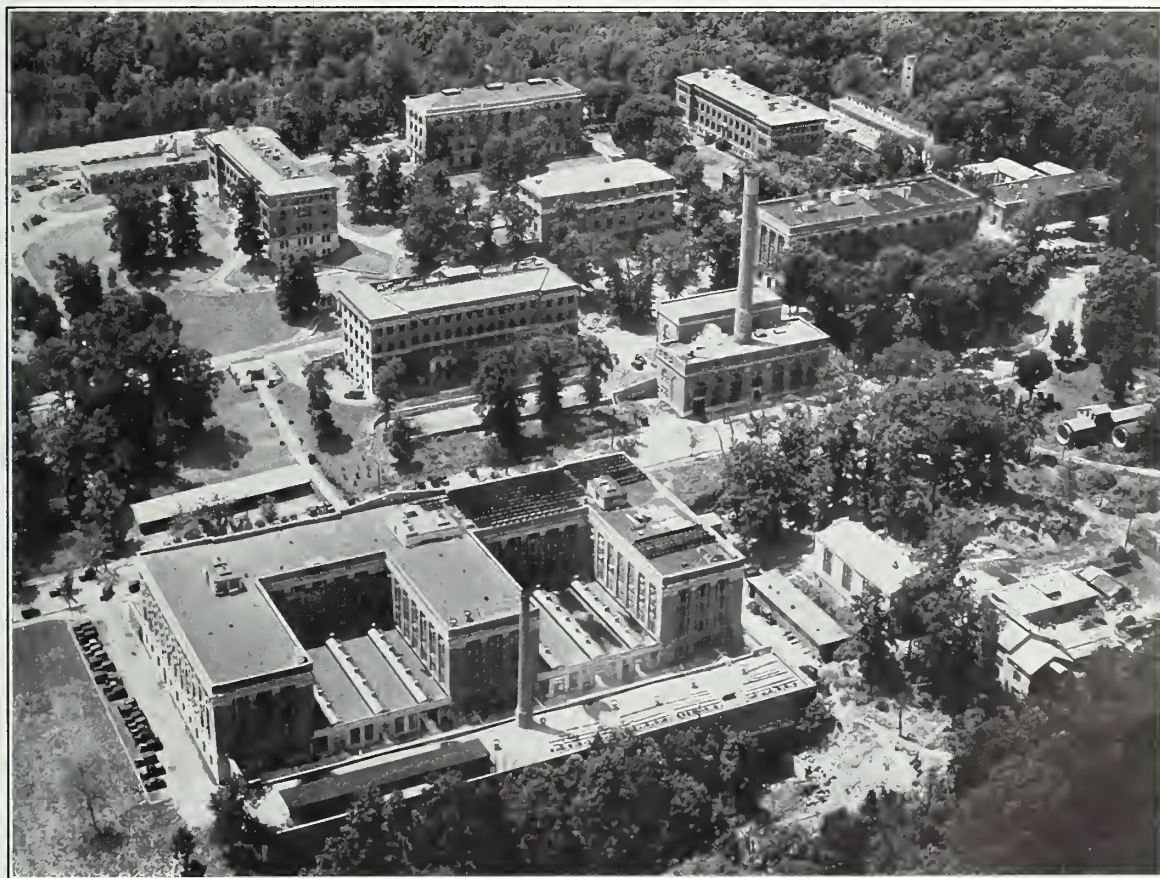


COMMERCIAL STANDARDS MONTHLY



*A Review of Progress in
Commercial Standardization and Simplification*



Photographed by Army Air Corps

AIRPLANE VIEW OF BUREAU OF STANDARDS (LOOKING SOUTH)

ISSUED BY THE BUREAU OF STANDARDS OF THE UNITED
STATES DEPARTMENT OF COMMERCE, WASHINGTON, D.C., U.S.A.

Vol. 9, No. 12



June 1933

The Commercial Standardization Group

A. S. McALLISTER, Assistant Director

DIVISION OF SIMPLIFIED PRACTICE

Edwin W. Ely

The division of simplified practice cooperates with industrial and commercial groups to reduce waste, usually through eliminating unnecessary variety of product, method, or practice. Its function is to bring together all parties interested in a project of this character, and to coordinate their work in developing a simplified practice recommendation. Such work includes surveys of current practice, formulation of a simplified practice program, and presentation of that program for action by a general conference representing all interests. The division then transmits to all concerned a full report of the general conference, with a request for written acceptance of the action taken. When the volume of acceptances is sufficient to indicate initial success, the Department of Commerce indorses the program and publishes the recommendation. The division thereafter cooperates with a standing committee appointed by the industry concerned, in conducting periodic surveys to determine the degree of adherence, to maintain and extend support of the recommendation, and to secure data for reaffirmation or revision. Simplified practice may be applied to any commodity or activity in which it will reduce waste. The division stands ready to render service in developing and making effective any application of simplified practice which will reduce waste, stabilize business, or extend commerce.

BUILDING AND HOUSING DIVISION

J. S. Taylor

The division of building and housing, formed in 1921, cooperates with business, technical, and professional groups in furthering construction activities. It works to modernize building codes and to encourage improved standards for the quality of building construction, and the practical application of the latest development in design and use of building materials.

It encourages home ownership through the development of an enlarged, steadier, more intelligent, and more discriminating demand for dwellings—the largest single class of buildings which the construction industries provide.

The division also cooperates with other governmental agencies and with many private business and professional groups in efforts to distribute building activity more evenly throughout the year and to secure less fluctuation from year to year.

The work on city planning and zoning has the broad objective of making buildings more useful through proper location with respect to other structures, stabilizing of land values and property uses, well coordinated thoroughfare systems, and well laid out public works.

DIVISION OF SPECIFICATIONS

A. S. McAllister

The duties of the division of specifications are to promote and facilitate the use and unification of specifications. In doing so it carries on activities involving cooperation with technical societies; trade associations; Federal, State, and municipal Government specification making and using agencies; producers, distributors, and consumers; and testing and research laboratories. It ascertains the standardization and specifications promoting activities of the associations and societies, and brings to their attention the work being done by the commercial standardization group. It brings the Federal specifications and commercial standards to the attention of the maximum number of producers and users of commodities complying with these standards and specifications. It compiles and distributes lists of sources of supply of materials guaranteed to comply with the standards and specifications. It shows both buyers and sellers the benefits from handling nationally specified, certified, and labeled commodities. The division prepares directories of governmental and nongovernmental testing laboratories and the Directory of Specifications, and is working on an encyclopedia of specifications, the first two volumes of which have been issued, namely, "Standards and Specifications in the Wood-Using Industries" and "Standards and Specifications for Non-metallic Minerals and their Products." It also aids in preparing the Standards Yearbook.

STANDARDIZATION
..IS..
A CONTINUING PROCESS
~*~
ITS AIM IS NOT FIXITY
OR STAGNATION
..BUT..
TO ADD SERVICEABILITY
AS OFTEN AS THE
POTENTIAL GAIN
MAKES IT WORTH WHILE

DIVISION OF TRADE STANDARDS

I. J. Fairchild

The division of trade standards, on request, assists industrial and commercial groups in the voluntary establishment of standards covering grades, quality, dimensional interchangeability, or other acceptance criteria as a national basis for marketing manufactured commodities.

The detail criteria are selected or determined voluntarily by interested buyers or sellers, without any Government dictation or domination, and adjusted at a general conference of producers, distributors, and users so as to represent the composite views of all branches. The division functions chiefly as a neutral agency to see that all interested elements are given full opportunity to be heard and satisfied; to solicit and record acceptances; and to publish and promulgate the standard when a satisfactory majority of acceptances is obtained and provided there is no active opposition.

Industries are encouraged to apply self-certifying labels to products meeting the commercial standard requirements, as a means of protecting the consumer and the scrupulous seller from misrepresentation or unfair methods of marketing.

Provision is made for regular revision of the standard through the appointment of a standing committee to consider periodically any necessity for revision of the standard, in order that it may be kept constantly compatible with progress in the industry.

COMMERCIAL STANDARDS MONTHLY

A Review of Progress in Commercial Standardization and Simplification

VOLUME 9

WASHINGTON, D.C., JUNE 1933

NUMBER 12

SUBJECT ANALYSIS

| BUILDING AND HOUSING | | INTERNATIONAL AND FOREIGN—Continued | |
|---|----------|---|----------|
| Acid in library air..... | Page 282 | Standardization briefs..... | Page 288 |
| Aids to the construction industry..... | 277 | Use of labels in Sweden..... | 279 |
| Concrete building units..... | 280 | Wire-rope terminal attachments..... | 284 |
| Copper wire nails..... | 271 | | |
| Grading rules for face brick..... | 284 | | |
| Home renovizing campaign started in Washington..... | 287 | | |
| New letter circulars..... | 271 | | |
| Recommended minimum requirements for small-dwelling construction..... | 285 | | |
| Steel reinforcing spirals..... | 281 | | |
| Steel roofing..... | 287 | | |
| Vitrified paving brick..... | 287 | | |
| Wrought-iron and wrought-steel pipe..... | 286 | | |
| | | | |
| FOOD STANDARDIZATION | | PAPER | |
| Barley grades revised..... | 272 | Acid in library air..... | 282 |
| Labels for canned fruit and vegetables..... | 286 | Basic sheet sizes of paper..... | 286 |
| New food definitions proposed..... | 286 | Ice-cream molds and cartons..... | 275 |
| Proposed changes in food and drugs act..... | 276 | Paper cones and tubes..... | 268 |
| Sizes of canned peas..... | 275 | Salt packages..... | 285 |
| Value of Federal food standards..... | 281 | Simplified invoice forms..... | 272 |
| | | Standardized forms for compensation claims..... | 284 |
| | | | |
| GLASS, METAL, AND WOOD | | PUBLICATIONS | |
| Commercial laundry machinery..... | 271 | Coated abrasive products..... | 279 |
| Copper wire nails..... | 271 | Commercial laundry machinery..... | 271 |
| Cupola refractories..... | 288 | Concrete building units..... | 280 |
| Glass containers..... | 279 | Grinding wheels..... | 288 |
| Milling cutters..... | 268 | New letter circulars..... | 271 |
| Mineral aggregate production screens..... | 281 | Paper cones and tubes..... | 268 |
| Present trends toward grade marking of lumber..... | 269 | Paving brick..... | 288 |
| Steel roofing..... | 287 | Recommended minimum requirements for small-dwelling construction..... | 285 |
| Tapered roller bearings..... | 283 | Steel reinforcing spirals..... | 281 |
| Textile machinery parts..... | 286 | Wrought-iron and wrought-steel pipe..... | 286 |
| Wire-rope terminal attachments..... | 284 | | |
| Wrought-iron and wrought-steel pipe..... | | | |
| | | | |
| GROUP ACTIVITIES | | QUALITY MARKS AND LABELS | |
| American Standards Association..... | 283 | Labels for canned fruit and vegetables..... | 286 |
| Bureau's exhibit at "A Century of Progress Exposition"..... | 282 | Present trends toward grade marking of lumber..... | 269 |
| Hydraulic-laboratory research..... | 287 | Proposed changes in food and drugs act..... | 276 |
| New Federal specifications..... | 282 | Protection of buyers against false claims..... | 280 |
| Weights and measures conference postponed..... | 266 | Standardization for economy in public-schools purchasing..... | 273 |
| | | The textile-shrinkage problem..... | 267 |
| | | Use of labels in Sweden..... | 279 |
| | | Value of Federal food standards..... | 281 |
| | | Wool and part-wool blankets..... | 284 |
| | | | |
| INTERNATIONAL AND FOREIGN | | TEXTILES | |
| Labels for canned fruit and vegetables..... | 286 | Cotton duck..... | 280 |
| Simplification of electric lamps for railway signaling..... | 285 | Hospital mattresses and pillows..... | 279 |
| | | Mechanical "hand" developed to "feel" cloth..... | 285 |
| | | Paper cones and tubes..... | 268 |
| | | Textile machinery parts..... | 286 |
| | | Wool and part-wool blankets..... | 284 |

AN INVITATION TO VISIT THE BUREAU OF STANDARDS

A cordial invitation is extended to all interested in scientific progress to visit the laboratories of the Bureau of Standards when in Washington. A personally conducted trip is organized at 2:15 p.m. daily except on holidays. Special trips for groups may be arranged at other times by writing to the Bureau in advance. The Bureau's illustrated Visitor's Manual may be had for the asking. This lists the work in progress and gives an airplane view of the ensemble and a brief statement of typical discoveries and inventions which have been notable, basic contributions to radio, aviation, and other modern arts and industries.

Weights and Measures Conference Postponed



Announcement is made by F. S. Holbrook, secretary of the National Conference on Weights and Measures, that the meeting of the conference which it had been hoped would be held in Washington, D.C., in June of this year, has been canceled. This action has been decided upon by the executive committee of the conference, which was polled on this question last month; ballots were received from a majority of the committee membership and the vote was unanimous for postponement. The committee felt that no other course was practicable in view of the continuance of the abnormal economic conditions which in 1932⁷ dictated the cancellation of that year's meeting.

Commenting on this decision, Mr. Holbrook said: "Much as I regret the necessity for this action, I concur heartily in the decision of the executive committee. If a meeting were to be attempted in 1933 I am convinced that it would not be up to the standard of former meetings of the national conference, because large numbers of those who would, under normal conditions, be present would find it impossible to be in attendance this year; in my opinion it would be unwise to hold a meeting with an attendance which would not be representative."

Mr. Holbrook stated that there were a number of important matters awaiting the consideration of the national conference. In this relation a State weights and measures official has offered some suggestions for interim action pending the resumption by the conference of its regular schedule of meetings. These suggestions are being studied in the hope that some temporary solution may be worked out.

"In the meantime", Mr. Holbrook said, "it is hoped that State and local weights and measures officials will freely avail themselves of such services as the Bureau of Standards can render. We are anxious to keep in touch with the officials and to keep informed as to the problems which are arising in the various sections of the country. In many such cases we may be able to make constructive suggestions or furnish information leading toward a solution of the problems in question. We hope that officials will write us at any time when it is believed that we can be of assistance to them."

THE TEXTILE-SHRINKAGE PROBLEM

What the Consumer Wants to Know and How the Government Can Aid, Outlined by Bureau of Standards' Textile Specialist

By WILLIAM D. APPEL¹

The Government is a large consumer of textiles. Numerous Federal specifications for textiles contain requirements limiting the shrinkage of the items covered by them. The Government is brought into intimate contact with the viewpoint of the industry as well as of the user and the laundrymen in the development of these specifications, since the knowledge and advice of everyone concerned is solicited before the specifications are promulgated.

It has experience with the subject in testing deliveries for conformance with the specifications. Further, the Government is concerned with shrinkage as an interpreter of that very important, though inarticulate, individual—the consumer—who may be you, or me, or nearly anyone in the country. The Bureau of Standards has given special consideration to the problems of the general public.

The Second Conference on Textile Shrinkage, which proposes the solution of the shrinkage problem through cooperation among textile manufacturers, distributors, retailers, users, and laundrymen, is evidence of the common interest in the problem. The Federal Government can be expected to give every help possible, for it has always favored the voluntary establishment of a common understanding between buyer and seller on the attributes of commodities in trade.

From the background of my personal contact with the shrinkage problem in the several phases of the work mentioned, I propose to give you a picture of the problem as I see it and to venture suggestions for its solution that may prove of help.

The shrinkage problem is not how to produce fabrics which will launder without shrinking, for that has been and is being done. Rather, it is to provide means whereby the purchaser of a fabric, garment, or other made-up article can be certain that it will launder without objectionable shrinkage. The problem is:

1. To be able to determine in advance of its use how much the fabric, garment, or other made-up article will shrink.
2. To know the permissible shrinkage for the intended use.
3. To be able to guarantee to the user that the material will meet this requirement.

If these things can be accomplished, then insofar as shrinkage is concerned business will be freed from unfair competition and consumer confidence will be established.

In order to know how much textiles will shrink in laundering, samples must be tested either in actual laundering or in a laboratory test which will produce the same amount of shrinkage as actual laundering. A suitable test has been developed for cotton textiles, and there should be no difficulty in developing one for

other textiles when needed. The standard method for cotton textiles was developed by the research committee of the American Association of Textile Chemists and Colorists, through the efforts of a subcommittee working under Howard D. Clayton. It has been found satisfactory and adopted not only by that association but also by the Textiles Committee of the American Society for Testing Materials and by the Federal Specifications Board. Thus a common basis for expressing the shrinkage of cotton textiles is now available. This test was possible because the laundry procedure had previously been standardized by the Laundryowners' National Association. It has been shown to give results comparable to those obtained in this procedure.

Through technical studies in the mills and testing laboratories there has also been laid a background of information which is prerequisite to the solution of the shrinkage problem. The conditions of manufacture which result in a product that will shrink are known. The relative importance of the factors in laundering—the water, detergents, temperature, and mechanical action—has been studied and is a matter of record. It is coming to be general knowledge that the dimensions of thoroughly shrunk cloth are not immutable. They may be expected to fluctuate in successive launderings, depending upon the way in which the cloth is dried and the way in which it is ironed. This fact is basic to the problem. Cloth does not have permanently fixed dimensions even when thoroughly shrunk.

The second part of the problem, the permissible shrinkage for different uses, is a question to be answered by the user. To demand that all textiles be completely shrunk is clearly not to the user's interest, for he would be obliged to pay for special processing to obtain this even when the particular use did not justify it. For example, sheets may be made larger than the minimum suitable dimensions without inconvenience to the user, in order that their dimensions may not fall below those dimensions on laundering. But a garment which is too large may be as unsatisfactory as one which is too small. Therefore, the actual requirements for the various uses need to be determined.

The third part of the shrinkage problem is to be able to guarantee to the user that the textile will meet the requirements of the intended use. Several ways may be considered, all, of course, involving the use of a label.

If, as indicated above, there is a place, not only for materials that will not shrink in laundering but for materials which will shrink to different degrees, then it is apparent that a label bearing the term "preshrunk", even when it can be taken literally, does not entirely meet the needs of the consumer. Other objections to the use of a label of this type will be evident from the discussion which follows.

Brand names on labels are probably the safest means of identification of textiles offered at the pres-

¹ Chief, Textile Section, Bureau of Standards Paper prepared at the request of the Textile Section, New York Board of Trade, Inc., for presentation at the Second Conference on Textile Shrinkage at the Arkwright Club in New York on May 16.

ent time because they place the responsibility on the manufacturer holding the brand and cover all characteristics of the cloth including shrinkage. Their weakness is that they are not measuring devices, and they provide no recourse for the consumer. They only identify. The value of a brand rests exclusively upon the established reputation of the manufacturer, and there is a constant temptation for those whose reputations are established to trade upon that fact or to meet competing prices by lowering quality. It is difficult for small but deserving manufacturers to obtain a foothold in the business, and the consumer can distinguish between the qualities of brands in many cases only after costly and lengthy experience.

As a result of his experience with the methods of identifying qualities just enumerated there has grown up an insistent consumer demand that manufacturers label their goods with detailed quantitative information, that the thread count, weight, tensile strength, shrinkage in laundering, etc., be placed on the label. This demand has been opposed by the manufacturers. They point out that this label is not only a nuisance which will inevitably add to the cost of the article to the consumer but that much of the information called for is valueless, or even misleading, when used as a basis for comparing the values of competing products. Thread count, strength, and weight serve as a basis for judging the difference in cost of two competing products to the manufacturers, but the consumer is interested in the value to him, not in the cost of production.

Now any limitation placed on the shrinkage of textiles is clearly a consumer requirement. It would seem, therefore, that he would be greatly benefited if fabrics were labeled to show the amount they would shrink in laundering. It must be remembered, however, that shrinkage is only one consumer requirement. The user of textiles is never concerned with just one feature of the article he buys. The firm buying cloth to be made into shirts and the man buying a shirt are not concerned alone with the shrinkage in laundering. They have in mind, unconsciously perhaps, a certain combination of properties relating to the appearance, suitability, and durability of the article, in fact a specification for it.

There are, of course, as many such specifications as there are uses for cloth. However, these specifications have not been reduced to quantitative terms and consequently detailed information on the label cannot be translated into comparative value or serviceability. Indeed, the expert would be at a loss to know, for example, which blanket of two offered at the same price is the better value when, according to the label, one has greater warmth and strength but the other has somewhat less weight and will shrink less. It appears obvious, then, that the manufacturers' objections to including a list of detail attributes on labels are valid.

The problem can be solved by writing consumer specifications for textiles setting forth the essential characteristics for specific uses. The label would then refer to one of these specifications. The label for sheets, let us say, might then read, "Guaranteed by the ----- Co. to meet the requirements of the New York Board of Trade, specification no ---- for quality sheets." The manufacturers' objections would

then largely disappear, for this label would be readily intelligible to every buyer and would enable him to make intelligent price comparisons. With the specification developed along the lines indicated, any article not meeting the specification would obviously be an inferior article.

The more backing that could be given a specification of this kind the greater would be consumer confidence in it. If desired, the specification could be presented to the Bureau of Standards for national consideration as a commercial standard. Then, provided no serious objections developed in the formal consideration of the specification by the groups concerned, and following adjustment and acceptance by a satisfactory majority, it would be promulgated by the Department of Commerce giving the authors full credit. This service of the Bureau of Standards is already known and understood by most of you and needs no further explanation here.

In conclusion, the following points may be emphasized: (1) The shrinkage problem requires the wholehearted cooperation of the groups represented here; (2) the standard method of test for shrinkage is the first step in its solution; (3) the actual shrinkage requirements of cloth, garments, and other made-up articles for the various uses should be determined; (4) in considering methods of labeling, it should be remembered that shrinkage is but one of the consumer requirements for textiles and if data concerning every essential characteristic are put on the label the difficulties of everyone concerned will be increased; and (5) the active and cordial cooperation of the Bureau of Standards in the development of standards for shrinkage is available on request.

MILLING CUTTERS

A proposed revision of simplified practice recommendation R36 covering milling cutters has been mailed by the Bureau of Standards to all interests in the industry for their consideration and written approval.

The revised recommendation, which was drafted by the industry's standing committee, effects a reduction in the number of stock sizes and varieties of milling cutters shown in the previous schedule.

It will become effective 1 month after the Bureau's formal letter announcing that this schedule has received the required degree of acceptance.

PAPER CONES AND TUBES

Simplified practice recommendation R143-33, covering paper cones and tubes (for textile winding), is now available in printed form, and copies can be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C., for 5 cents each.

This simplification program, which was proposed and developed by the industry, is concerned with the length, inside diameter, weight per thousand, and color of paper cones and parallel tubes. These cones and tubes are used for winding textile materials, such as warp and knitting yarns, silk, rayon, hosiery yarns, tire cord, thread packages, and wire-insulating yarns.

PRESENT TRENDS TOWARD GRADE MARKING OF LUMBER

Through Grade Marking of Lumber Consumer Receives Certified Standard Quality

By GEORGE A. COOPER, *Bureau of Standards*

Grade marking of commodities is not a new thing.

Grade marking of commodities is new in the comparative sense of extensive application. Grade marking today (1933 and the past few years) has been a necessity due to a "consumer's market" and the public demand for a tangible guarantee of quality. This is true of lumber.

For decades, lumber has been grade marked in many other countries where the merchandising of lumber products has been carried on efficiently. The greater portion of standard sawmills in Europe is grade marking its products and has been doing so for a century or more. It was not until after the World War that some American lumber associations instituted for their members the grade marking of lumber, supported by association inspection for the domestic market. Before that time American lumber exporters had grade-marked products destined for foreign consumption.

The problem of simplifying sizes, nomenclature, grades, and trade practices has been before the lumber industry for many years, and it has long been recognized that, even though cut from different species, lumber of similar characteristics and intended for similar purposes could be produced, merchandised, and applied in accordance with fixed standards. In the past many have urged that the wide variation in regional practices as to size, grading, and names reacted to the disadvantage of the user, retailer, wholesaler, manufacturer, and indeed, all groups interested in lumber, and that sane standardization offered promise of increased economy, more profitable and stable business, and markedly better service.

The constructive advance to solution may be dated from the convention of the American Lumber Congress in 1919, when an organized program was adopted looking to the simplification of lumber-grading standards, greater uniformity in the basis of similar grades of competing species, and the standardization of sizes of yard and factory lumber. A sound basis was at hand in the work of the Forest Products Laboratory of the United States Department of Agriculture, which had been studying, investigating, and urging national lumber standardization for many years. Progress, though continuous, was somewhat slow during 1920 and 1921, but early in 1922 the Secretary of Commerce responded to the request of the industry with suggestions for hastening results and an offer of cooperation in activities along definite lines. These were to be specifically directed to realizing the proposals for simplification and standardization and to development of more adequate quality guarantees to the lumber-using public.

The grade marking of lumber logically started with producers of refined lumber items. Thus, maple and oak flooring have been grade marked for many years. In the softwood field the Southern Pine Association was the first association to take up the system; later the Northern Hemlock & Hardwood Manufacturers' Association, the West Coast Lumbermen's Association,

the Arkansas Soft Pine Bureau, and other organizations have adopted the grade-marking system.

It is hoped that grade marking will become a universal practice in view of the position taken by the National Lumber Manufacturers' Association. In January 1928 this organization decided to institute a combined trade- and grade-marking system for its members. Under this plan each piece of lumber produced in accordance with American Lumber Standards is provided with a regional association or species grade mark indicating its quality and source. The national association symbol is included on properly seasoned lumber and on structural timbers.

The association, furthermore, planned to protect the consumers of such grade-marked lumber by means of a definite financial guaranty of the correctness of the grades as marked on lumber sold by its members. The association agrees to pay at once any claims which, upon reinspection, have been sustained, thus relieving the customer of the necessity of dealing with the individual producers, who are often located long distances from the points of consumption. These grade marks are applied to lumber manufactured and graded in accordance with American Lumber Standards, Simplified Practice Recommendation R16-29, Softwood Lumber, developed by industry. The details of this plan, including the creation of an association symbol or trade-mark, have been worked out. The importance of this step in promoting universal grade marking of lumber is readily apparent.

It is obvious that the Government departments and establishments are large users of lumber. For example, the "General Specifications for Inspection of Material" covering "Lumber and Timber" used by the Navy Department include these requirements: Unless otherwise specified, lumber or timber required to be in accordance with the rules of a commercial lumber association will be accepted when each piece bears the association grade mark and the "national tree mark", or on the certificate of grading issued by the association whose rules are being employed as to kind, grade, and measurement, in lieu of Navy Department inspection. * * *

The War Department is also a large user of lumber. Its attitude on grade-marked lumber can best be explained by reading sections of a letter written on December 10, 1927, by the Assistant Secretary of War to the National Committee on Wood Utilization.

The War Department is much interested in your lumber grad-marking campaign, because we realize that lumber conscientiously marked represents an important step toward the standardization of lumber manufacture. It is evident that grade-marked lumber offers an added protection to the consumer and lessens the necessity for rigid inspection. In case of an emergency this practice should expedite the filling of our requirements at a time when time is at a premium. The War Department, therefore, endorses this grade-marking movement.

It will be noted that the above letter bears the date December 10, 1927. In order to make assurance doubly sure, the War Department was asked for its

present opinion of grade-marked lumber and its present requirements. In a letter dated March 17, 1933, from the Office of the Quartermaster General, we are informed that:

In regard to specifications for new construction, United States Army buildings, it is the present practice to call for dimension lumber and boarding to be grade marked by a recognized lumber association or, in lieu of grade marking, require a certificate of grade from such association.

The statements which follow are based on a report of the subcommittee on the grade marking of lumber of the National Committee on Wood Utilization.

Advantages to the consumer.—Just as the customer who buys silver with a "sterling" mark knows that he is receiving the proper fineness of silver, so will the purchaser of conscientiously grade-marked lumber know that he is getting a certified standard quality. Undoubtedly many consumers of grade-marked lumber will find that a less expensive grade of lumber will do for many purposes where a more expensive grade had previously been used—the result of custom handed down from times when lumber was cheaper and more plentiful. Many architects and contractors have testified that they have always specified or ordered no. 1 common where lower grades would have served the purpose equally well. It was the uncertainty as to receiving the grade specified that made them demand better quality than was actually needed for their purpose. The difference in price between the various grades may be 30 to 60 percent, and even more in some instances. Intelligent specification of grades naturally depends on a knowledge of defects permissible in each grade, and grade marks will aid consumers in obtaining a better understanding of lumber grades.

Grade marking as a factor in wood utilization.—The grade marking of lumber is also of the utmost importance in an intelligent utilization of forest products. Virgin timber is gradually disappearing, and it is evident that the Nation must ultimately depend on second-growth timber of smaller dimensions. In fact, today more second-growth timber than virgin growth is being used. This naturally means a decrease in the production of high-grade lumber, yet in the face of this condition the demand for higher grades is at present much stronger than for the lower grades. Consequently, the lumber mills find difficulty in making an even distribution of the manufacturing cost over all grades produced, and large quantities of common lumber are wasted because under present conditions there is no market.

It is evident that this waste can only be recovered by charging higher prices for high-grade lumber. By grade marking a better demand for "common" will result, and a stabilization of lumber prices and production will follow which will benefit the producers, distributors, and consumers. Greater utilization of timber will help to make reforestation commercially feasible. It is of the utmost importance that there be a clear understanding of the fact that reforestation will not be possible until a larger percentage of the tree is marketed.

Expert grading necessary.—The grading of lumber is not based upon laboratory analysis but is governed by the presence or absence of defects, such as knots, checks, and decay. There are no two pieces of wood identical in appearance, and grading rules

can only specify the maximum number of defects allowed in each grade, leaving it to the expert grader to apply those rules in the light of common sense and long practical experience. The distinguishing mark indicating the grade of each piece should be applied by the grader at the sawmill. At any rate, misunderstandings and loss of time, money, and good will have been some of the results of failure of producers to grade mark their lumber.

Grade marking builds confidence.—Grade-marked lumber carries the assurance of the producer that each piece is of the quality indicated. Mistakes will occur, as in any other business, but the mill which intends to develop a market for grade-marked lumber will make right what is wrong without quibbling. The consumers know this. They would not buy grade-marked lumber unless they were definitely given this assurance. Inspection at the consuming point will be simplified by grade marking and greater confidence will be established between producer and consumer. It should also be borne in mind that distributors have often in the past been blamed for poor quality of lumber, while with grade-marked stocks this responsibility would rest with the sawmills.

It is not only between consumers, distributors, and producers that disputes and misunderstandings in regard to lumber have come about. Contractors and builders have often been unjustly criticized by architects and home owners for supplying lumber below the specified grade. The builders and contractors may have ordered the lumber in accordance with the architect's specifications but received a lower grade than called for. The presence of grade marks will provide the necessary basis for the settling of a dispute of this kind in a satisfactory manner; in fact, there would be few if any disputes of this nature under general grade-marking practice.

Lumber standards.—It is not only in regard to species and grades that the consumers are subjected to confusion. Prior to the establishment of the American Lumber Standards, Simplified Practice Recommendation R16-29 by the industry under the auspices of the Bureau of Standards, as many as seven different thicknesses, all sold as 2-inch lumber, were on the market. The consumers of lumber produced in accordance with American Lumber Standards are protected at the present time, but unless a grade mark tells him, the buyer cannot know without actually measuring each piece whether the lumber is made to American standards, as it is impossible to ascertain this at a glance. For this reason the National Lumber Manufacturers Association has instituted a marking system whereby lumber produced by association members in accordance with American Lumber Standards will be so grade marked. The grade marking of lumber to indicate conformity with American Lumber Standards is therefore a very important project. If generally carried out, the consumer of grade-marked lumber will receive a triple protection, namely, assurance as to kind, quality, and standard of dimensions.

Grade marking for "certified houses."—The financing of home building is an important activity, and financing companies are naturally interested in the question of materials used. Home owners desiring to resell their property must satisfy the prospective purchaser of the quality of the materials used in the

construction of the house. This matter has been fully appreciated by suppliers of other materials. House specifications, therefore, usually contain definite requirements as to the quality of plumbing fixtures, electric wiring, roofing, and many other items, but difficulty has been experienced in regard to satisfying the prospective house owner that lumber of specified grades has been furnished on account of the absence of grade marks. Certain grades of structural timber have certain stress values and strength limitations, therefore to use these grades safely and intelligently their correctness must be assured by experts.

When grade-marked lumber is purchased, it would, for instance, be possible to state that first grade "maple" or "white oak flooring" of clear grade had been used, instead of merely saying "hardwood flooring", which term is very indefinite, because there are several hundred kinds of hardwoods in the United States, many of which are not suitable for flooring purposes. That such definite grade and species specifications would have an important influence on the value of the property is evident.

Protection against unfair competition.—Consumers should also remember that when asking for bids on grade-marked lumber they place dealers on a fair competitive basis, because it would not be possible to secure an order and then without detection substitute

one grade for another. This would not result in any interference with legitimate competition. Grade marks protect the honest builder and contractor against unfair practices by people who take advantage of the consumers' ignorance of lumber species and grades.

Promotes standardization.—It is often found, particularly by industrial consumers, that lumber produced in certain districts possesses qualities which are especially desirable for certain purposes. This applies particularly in regard to the texture of wood. Grade marks will aid consumers in the selection of specialty stocks, and much trouble and unnecessary work will be eliminated, because the stock can be identified by the grade marks. This aids the distributor and producer in developing a steady demand and stable production. Were the lumber not branded, the chances are that the producer would never know that his lumber is specially suitable for a particular purpose. Consequently, it might be turned to other uses where it is less valuable and therefore brings lower prices—needless loss of profit to all concerned. In order to retain trade, both producer and distributor would make special efforts to satisfy their customers and, as in all cases involving the elimination of waste, the consumer would receive his part of the economy effected.

COMMERCIAL LAUNDRY MACHINERY

Four simplified practice recommendations on commercial laundry machinery (RR139-32 for extractors; R140-32, for ironers; R141-32, for tumblers; and R142-32 for washers) are now available in printed form. They provide a list of standard sizes and types of machines which should cover all normal requirements of the users.

The recommendations are the result of a survey made by the Laundry Machinery Manufacturers Association, in cooperation with the division of simplified practice of the Bureau of Standards. Prior to the drafting of these recommendations, practically all the laundry machinery was produced on a custom-made basis, there being no recognized standard sizes in the industry. The manufacturers, appreciating the benefits of simplification and desiring to establish their industry on a more economical basis, decided to eliminate a great many of the sizes and types which had been made in the past and to limit their production to such sizes and types as represented the bulk of the demand.

The recommendations were very favorably received by the commercial laundries throughout the country and were formally approved by the Laundryowners National Association of the United States and Canada, which represents more than 2,000 such laundries.

Recently the Laundry Equipment and Supplies Committee of the Federal Specifications Board, meeting to revise the Federal specifications for laundry equipment, took cognizance of these recommendations. In the future the sizes and types of machines included in the Federal specifications will conform to those listed in the simplified practice recommendations.

Copies of these recommendations, which were proposed and formulated by the industry, can be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C., for 5 cents each.

COPPER WIRE NAILS

A proposed simplified practice recommendation covering copper wire nails has been mailed to all interests in the industry by the Division of Simplified Practice of the Bureau of Standards, for their consideration and written approval.

This recommendation, which was proposed and formulated by representatives of the industry, is concerned with the length designation of common copper wire nails and copper wire slating nails, together with the gage and the decimal equivalent thereof in inches.

NEW LETTER CIRCULARS

Announcement of the availability of five new letter circulars, in mimeographed form, has just been made by the Bureau of Standards. These circulars expedite answers to numerous inquiries on a given subject, and they are issued on specific request to those persons having a special interest in the respective subject matter. Requests for the circulars listed below should be addressed to the Bureau of Standards, Washington, D.C.

LC368. Routine testing of lubricants and liquid fuels. This letter circular describes why it is not feasible at the present time for the Bureau of Standards to make routine tests on lubricants and liquid fuels for the general public.

LC369. Survey of city planning and related laws in 1932.

LC370. Regional planning commissions or organizations in the United States.

LC371. City planning commissions in the United States.

LC372. Use of flexible steel gages in gaging the mesh of gill nets.

SIMPLIFIED INVOICE FORMS

By FRANK C. WOODROFFE¹

Approximately 18 years ago the office auditor said, "How can you hold me responsible for the correctness of the books with the new-fangled loose-leaf system you have installed?"

This statement may appear to the reader as a smart opening paragraph to secure his attention. Nevertheless, it is absolutely true.

Compare the business office of today with that of 25 years or even 15 years ago. Do you recall the high bookkeepers' desks with the back-breaking, tiring high stool; small individual light casting shadows on your books; dirty inkwell which the office boy neglected to wash out on Monday morning, picking up your pen to write only to find that due to a hair on the point a blot was made on your book; or the lead of your pencil broken and a scurry to find a penknife to sharpen it; the inconvenience of many bound books, especially the old-fashioned ledger with the accounts continued on many different pages far apart because they proved bigger than was expected and insufficient pages were allowed for their continuance.

Now turn to the picture of today—splendidly lighted offices with the light evenly distributed; flat-top desks and convenient, restful chairs; the book-keeping machine that gives you the desired results with a minimum of effort, giving you in one operation what at one time took a full half dozen or more; the fountain pen; the automatic lead pencil, ever ready for instant use.

And yet, to mention one item only, very little or no advantage has been taken of the improvement and simplification in invoices over the past years.

We still adhere to the old invoice perhaps 5 inches wide by 3 inches long or it might be 7 inches by 15 inches. We attempt to place all these varying sizes on a file or in a cabinet. What is the result when we attempt to find one? This old-fashioned invoice form in its many sizes contains information in any corner where it is convenient to place it and eventually we find that the most important and really necessary information is often not given any space at all, with the result that the invoice clerk spends his time not in agreeable productive labor but by far the great portion of it scanning each different invoice to endeavor to obtain the information he requires.

Why should the invoice form—one of the most important and much used forms in the office—lag behind in progress? Why not consider the same progress in your office forms as in your office equipment and methods?

Ask the office manager or invoice clerk what he thinks about the simplified invoice. He will immediately tell you why he should have adopted it long before. In the beginning, like the auditor, we did not progress with the time and now cannot see how we ever

carried on business with the old, inconvenient, incomplete, illegible form.

The simplified invoice comes in three sizes—7, 11, and 14 inches long by 8½ inches wide.

Compare a file of these invoices with a file of the old ones. It has a definite zoning for the required information, enabling you to secure the desired information at a glance. It even has a zone already printed with the necessary headings, enabling the recipient, with a minimum of effort, to properly certify the invoice for payment and allocation to proper department or heading for cost accounting.

"But", you may say, "I know nothing about this invoice; I had nothing to do with its make-up. How do I know it is going to be applicable to my special requirements?"

But it has been made up by you in that the development of this invoice has been worked out by the cooperation and collaboration of representa-

tives of hundreds of industries throughout the continent, in different lines of business. Approved and sponsored, amongst other associations, by the American Railway Association, division 6, purchasing and stores; the National Association of Purchasing Agents, Inc.; Autographic Register Manufacturers' Association; National Association of Builders' Exchange; United Typothetae of America; and a score of other equally large associations, and endorsed by the Division of Simplified Practice of the Bureau of Standards.

It is now being used by several thousand companies in Canada and the United States.

BARLEY GRADES REVISED

The Secretary of Agriculture has issued an order under the Grain Standards Act revising the standards for barley so as to define and provide grades for "Blighted" barley, and amending the definition for "Sound" barley and the grade requirements for "Sample grade" barley.

The purpose of this action, which is effective July 21, 1933, is to make grades conform to users' requirements and to facilitate equitable grading of country-run barley.

The practical effect of the order will be this: In the inspection and grading of barley, kernels damaged or materially discolored by blight or mold are not to be regarded as sound kernels; the straight, unqualified grades, that is, "No. 1 Barley", "Special No. 2 Barley", etc., may contain as much as 2 percent (by weight) of such blighted kernels; when the barley contains 2.1 to 5 percent, inclusive, of such blighted kernels, the word "Blighted" will be added to the grade designation, that is, "No. 1 Barley, Blighted", "Special No. 2 Barley, Blighted", etc.; and when more than 5 percent of the kernels are blighted the grade "Sample grade" will be assigned to the lot.

Detailed information regarding the simplified invoice form, including a list of the acceptors, may be obtained from the Division of Simplified Practice, Bureau of Standards.

¹ Chairman, simplification committee, National Association of Purchasing Agents.

STANDARDIZATION FOR ECONOMY IN PUBLIC SCHOOLS PURCHASING

Professor of Government Urges Centralized Buying on Recognized Specifications As a Measure of Intelligent Economy

By RUSSELL FORBES¹

It is of course unnecessary for me to remind you that we are in the midst of a financial crisis in the administration of the public schools. We are confronted with a situation and not a theory. The members of the National Association of Public School Business Officials are in the thick of the fight to balance school budgets, and, despite their best efforts, many have been waging a losing battle. In several sections of the country the situation is so critical that the school year has been curtailed, essential school services have been eliminated, or schools have been entirely closed. In this crisis, the members of this association have as their outstanding functions to insure from the school-tax dollar, whether gold-standard or otherwise, the greatest possible returns in educational services.

It is my purpose to ask your serious consideration of the coordination of school purchases with the purchases of other governments as a means for increasing the mileage of the tax dollar which goes for supplies, materials, and equipment. I need not defend the idea of centralized purchasing. Most large public-school systems have adopted it. Their purchasing officials have demonstrated that the supplies, materials, and equipment for all the units of a school system can be bought more economically and more efficiently through one office than by each unit separately. It is my thesis that the present crisis makes imperative the further extension of centralized purchasing through pooling of the schools' requirements with those of the city and county governments in the interests of reduced material costs.

A few years ago this would have been only a pretty theory, lacking the proof of experience. Today we may examine the results of a 2-year demonstration of coordinated purchasing in Cincinnati, Ohio. This successful experience was briefly described by Charles E. Lex, Jr., in the February 1933 issue of *The American School Board Journal*. The results and methods have now been more fully summarized by the Cincinnati Bureau of Governmental Research in a recent report, upon which my remarks are largely based.

Coordinated purchasing began in Cincinnati in June 1931 with a coal contract for the city, the schools, and Hamilton County. At that time the purchasing agents and other administrative officials of these government units had cooperated in the adoption of a standard coal specification. Bids were then asked on the coal requirements of the three governmental units, totaling 100,000 tons. The bids were opened and read on the same day and hour by all three purchasing offices. A gross saving of \$1 per ton, or a total of \$100,000, was made under the prices paid the preceding year. After making allowance for the decline in market prices, it was agreed that a net saving of at

least \$50,000 could be credited to the bulk-purchasing method.

Previous to this experiment, the Cincinnati Bureau of Governmental Research had conducted in 1930 a survey of the financial and accounting methods of the board of education and in its report had recommended a revised purchasing procedure, modeled after the system used by the city. To carry out these recommendations the board of education then appointed the city purchasing agent to act as its buyer also. While serving as joint purchasing agent this official persuaded the city and the school board to adopt standard specifications for a number of the commodities which they use in common and to issue a number of joint contracts for their combined needs. After having installed a new purchasing system and after having given a brief but successful demonstration of the advantages of coordinated purchasing, this official resumed his full-time duties as city purchasing agent, and the board of education appointed a trained buyer who had purchased for a large corporation in the city.

About this time (early in 1932) there was formed a committee on coordination and cooperation composed of the city manager, the president of the board of education, and the president of the board of county commissioners. One of the first acts of this committee was the creation of the coordinating committee of purchasing agents, consisting of the city purchasing agent, the county purchasing agent, the business manager, and commissioner of supplies of the board of education, and the purchasing agent of the University of Cincinnati, which is supported by public funds. A member of the research staff of the Cincinnati Bureau of Governmental Research serves as secretary of the committee.

At its first meeting, held on March 15, 1932, the committee decided that price inquiries sent out by all the governmental units should be circulated among the members of the committee as a means for determining what articles being regularly purchased were common to the needs of all units and therefore subject to coordination. The committee then decided that its work program should center around the following six activities:

1. Preparation of standard specifications for commodities used in quantity by two or more of the governmental units.
2. Study of contractual services necessary to two or more of the governmental units.
3. Legal problems involved.
4. Financial arrangements.
5. Joint storage facilities for bulk materials.
6. The necessary working organization to conduct coordinated purchasing.

The committee meets weekly, or oftener if necessary, rotating among the offices of the members. Minutes of each meeting are kept by the secretary and are read

¹ Professor of government and director of the division of research in public administration, New York University; address delivered at the twenty-second annual convention of the National Association of Public School Business Officials, Pittsburgh, Pa., on May 18.

and approved or amended at the next meeting. All questions involving major policies are referred for decision to the committee on coordination and cooperation composed, as explained above, of the administrative heads of the several governmental units.

The problems of coordinated purchasing are in many ways identical with the problems of establishing centralized purchasing, with which you are familiar. Of first importance is the task of standardization and the adoption of standard specifications. Before the advantages of bulk buying can be realized, it is necessary to secure the agreement of the cooperating government units to the use of the minimum number of qualities and sizes of commodities and to the description of such standards in written specifications; a similar step is necessary to centralized purchasing for the different units within a school system.

In Cincinnati the coordinating committee of purchasing agents followed the usual procedure. By conference it was decided that the sizes of floor brushes for example, could be reduced from 8 to 4. Specifications describing the sizes and qualities of these four standards were then formulated and agreed upon. It was found that the city used three grades of gasoline for trucks, passenger cars, and fire apparatus. The county surveyor purchased on a different specification, and the other county departments bought ethyl gasoline from various dealers. The joint specification, as agreed upon, provided for three grades of gasoline suitable to the requirements of all the government units. Joint standards and specifications have been adopted for 85 different commodities, including coal, canned foods, electric-light bulbs, carbon paper, and soap. The laboratories of the University of Cincinnati have been of great aid in testing samples as a basis for the adoption of written specifications.

In determining the time to buy as well as the quantity to be bought, the decision is arrived at in conference by the coordinating committee—a procedure which gives the public the benefit of the combined judgment of the committee on probable market trends. In Cincinnati, as elsewhere, the law requires that purchases over a certain maximum amount shall be advertised and the award shall be made on a contract after sealed bids are opened in public. Standard forms of advertisement, bid, and contract have been devised and adopted. Bids are requested on the total quantities needed by all the government units on each item included in the advertisement. Bids are opened, tabulated, and studied by the entire committee before an award is made. Joint contracts are now in effect for 34 commodities, including coal, gasoline, lubricating oil, tea and coffee, meats, canned foods, automobile and truck tires, X-ray films, and electric-light bulbs. In making the award, each government unit enters into a separate contract, using the standard form.

If the amount of the expenditure for each government unit is below the maximum fixed by law, the purchase is made on the open market. One member of the committee is usually delegated to handle the transaction in behalf of the group. Invitations for bids are sent to prospective vendors and notice of the pending purchase is posted on a bulletin board in each of the purchasing offices. Awards are determined by the entire committee, although each member issues his own separate order on the standard form at the unit price quoted for the total requirements.

Many miscellaneous items cannot be covered by a definite-quantity contract, because the needs cannot be accurately determined in advance. To prevent the waste of purchasing such items in small lots at retail prices, the committee enters into verbal agreements with the vendors. Inquiries are sent out asking for bids on the estimated total requirements, for delivery in small lots as needed throughout a definite future period.

After prices have been obtained on the basis of standard specifications, the award is made by the committee and an informal agreement, in the form of a letter, is sent to the lucky bidder by the purchasing agent of each Government unit. Each Government unit thereafter, during the period of the agreement, calls for delivery in the quantity needed, but receives an invoice at the unit price stated in the agreement for the total requirements of all the Government units. The verbal agreement usually contains a clause protecting the purchaser against advances in market prices, but allowing the benefit of any price decline during the period covered. More than 50 verbal agreements are now in effect, covering such commodities as window glass, soap and soap powders, drinking cups, pipe and pipe fittings, stapling machines, fuses, ladders, white lead, carbon paper, and typewriter ribbons. By the use of verbal agreements, the several Government units are spared the necessity of tying up funds for a long period because no fixed amount is encumbered until the order for delivery on the agreement is issued. The cost of purchasing is reduced, since the volume of work and the expense of securing bids on many small orders is eliminated. Furthermore, the benefit of wholesale buying is realized even though the commodities are delivered in retail lots.

The responsibility for inspecting deliveries rests upon each Government unit. Since the quality required and the method of testing are in most cases definitely set forth in the specification, very few disagreements over the acceptability of the deliveries have thus far arisen. Wherever the commodity being purchased is not adaptable to scientific test of a delivery, samples are received with bids and the sample submitted by the lucky bidder is retained for comparison with the delivery. When samples submitted with bids are tested prior to the award, the expense of the test is shared by the different Government units in proportion to their interest in the order or contract. The cost of testing samples of deliveries is borne entirely by each receiving unit. For testing samples submitted with bids and samples of deliveries, the facilities of the University of Cincinnati are used wherever possible. In other cases commercial testing laboratories are employed.

The storing of commodities after delivery and before use is also carried on independently by each Government unit. The board of education maintains a large storehouse for servicing the entire school system. The city, the county, and the university have several small storerooms. Food and clothing issued in public-welfare work by Hamilton County are purchased for the most part through the coordinating committee and are stored in a separate county warehouse.

First of all it should be emphasized that the schools, under this plan of coordinated purchasing, retain that financial autonomy which they have secured after pro-

tracted struggle. There is no pooling of funds used in expenditures for supplies, materials, and equipment; only the buying power is pooled to secure the advantage of lower unit prices. The contracts and orders are awarded, the deliveries are called for and accepted or rejected, and the commodities are stored and controlled, separately from the other Government units. The identity of the school purchasing office remains intact. It continues to exercise full authority for the purchase of those commodities which are peculiar to school use. But experience has shown that the Cincinnati schools use, in common with other Government units, nearly 100 staple articles which constitute the bulk of their expenditures in dollars and cents.

In the second place, coordinated purchasing has created a better relationship between the purchasing officials and the vendors. Since awards are based on the judgment of the committee and since complaints are heard before the whole committee, the individual purchasing agents have been spared most of the criticism so often levelled against them by disgruntled vendors claiming irregularity and favoritism in the award of orders and contracts. By adopting standard specifications and standard forms and procedure, the committee has clarified and simplified the responsibility of the bidder.

Thirdly, competition has been increased because of the larger quantities involved. This has encouraged vendors in the belief that all are accorded equal and fair treatment. By combining their individual records, the coordinating committee has built up a complete list of vendors and all are asked to bid. Thus the entire potential market is canvassed.

Because of the fluctuations in market prices since coordinated purchasing was undertaken, it is difficult to compile an accurate list of savings. However, on the contract for electric-light bulbs, representing the combined needs of the city, the county, and the schools, an additional discount of 3 percent was secured, although each government unit had previously secured the usual wholesale terms. On a contract for canned foods totaling almost \$23,000, a saving of \$4,700 was secured by joint purchase. Those who have been intimately associated with the project estimate that coordinated purchasing has effected average savings ranging from 5 to 10 percent.

In further explanation, it must be pointed out that each of the four governmental units concerned has a most efficient purchasing system. The savings therefore cannot be ascribed to improvement in technique. The economies must be ascribed to the tangible factor of lowered prices through increased buying power.

In *The American School Board Journal* for July 1931 H. W. Schmidt states that more than \$100,000,000 is spent annually for school supplies, materials, and equipment. Prices, it is true, have declined and economy programs have decreased the school purchases in the past 2 years; on the other hand, school populations have increased, so that the public-school systems of this country probably still spend approximately \$100,000,000 for commodities per year. Manifestly, any method which will reduce unit costs of material without impairment of school efficiency will provide aid and comfort to the impoverished taxpayers whilst safeguarding the education of their children.

But you say that the political factor is an imponderable one; that the cities and the counties are too

politically minded to cooperate on a scientific and open-and-aboveboard buying program. It is my contention that what has been done in Cincinnati can be done in other cities. The public-school system, being dearer to the hearts of our countrymen, in some cities can take the initiative and, with popular backing from taxpayers' associations, research bureaus, and parent-teachers' associations, can force the other government units to raise their buying methods to the level of school efficiency. Improved methods of purchasing which would be a luxury to one small government unit, can be made to pay when applied to the purchasing problems of all the government units in a community. Boards of education and public-school business officials can render a real service to the cause of constructive economy in government by insisting that the buying power of all agencies spending public funds shall be pooled in the interests of the taxpayers' pocketbook whence comes our help.

Coordinated purchasing does not, let me repeat, involve a surrender of financial autonomy by the schools. It means merely that the school system, now often a small buyer, can become a big buyer of those commodities which it uses in common with other Government units. A crisis like this demands a serious reappraisal of time-honored methods. New methods must be adopted even though they may appear at first sight to be bitter pills to swallow. Do the individual Government units dare to keep on rowing their own little boats in the present stormy seas with the reefs and shoals of bankruptcy already in sight on many shores?

ICE-CREAM MOLDS AND CARTONS

Simplified practice recommendations R120-31, covering ice-cream-brick molds and cartons, has been reaffirmed, without change, by the industry.

This recommendation, which was proposed and developed by the industry, is concerned with the dimensions for the 2-gallon mold, and machine-filled pint and quart ice-cream cartons. It has been in effect since January 1, 1931.

SIZES OF CANNED PEAS

The required degree of written acceptance has been accorded simplified practice recommendation R149-33, covering sieve (screen) sizes of canned peas, and it may be considered effective as of May 1, 1933, according to formal announcement by the Bureau of Standards.

This recommendation, which was proposed and formulated by the industry, lists the screen opening sizes to be used in separating peas into three size groups, designated, respectively, as small, medium, and large.

The new "small" size combines the old size nos. 1 and 2 in both the Alaska type and sweet varieties of peas. The "medium" size replaces the old size no. 3 of the Alaska type and the combined size nos. 3 and 4 of the sweet varieties. The combined old size nos. 4 and 5 of the Alaska type and nos. 5 and 6 of the sweet varieties are designated as "large" in the new schedule.

PROPOSED CHANGES IN FOOD AND DRUGS ACT

Conference Discusses Better Protection of Public Against False Claims

Progress toward protection of the public against false advertising of foods and drugs, through revision of the Pure Food and Drugs Act, was made during the recently held conference of representatives of the two trades involved and of the press and radio, which carry the advertisements, with officials of the United States Department of Agriculture to present their views on proposals to strengthen the act.

Suggestions ranged from opposition to any essential change in the act to proposals to empower the Federal Food and Drug Administration to impose heavy penalties for false advertising and to enjoin the use of such methods.

Representatives of the food trade met with the Federal officials concerned and expressed general approval of suggestions for regulation by the Food and Drug Administration of false advertisements of foods and of other proposals to strengthen the act, according to statements made by trade delegates after the conference. The Department of Agriculture itself refrained from presenting any suggestions at the conference, preferring to hear the views of the trade before beginning the draft of a revised act.

The attitude of the Department of Agriculture, as expressed by the Assistant Secretary of Agriculture, Rexford G. Tugwell, is that the Food and Drugs Act "is generally admitted to be inadequate at present for the protection of consumers. The opinions of various groups directly or indirectly interested", he said, "will, we expect, expedite the production of a draft that will be most practicable and that will, at the same time, accomplish the degree of consumer protection we want."

W. G. Campbell, Chief of the Food and Drug Administration, for years has advocated extension of his organization's power to include advertisements of foods and drugs, as well as the labels on the packages, as provided in the present law. He pointed out that false and deceptive statements have largely been driven off the labels on these products, but that this work has been nullified in large part by the fact that deceptive advertising continues and the public is prone to accept these advertisements without checking to see if the labels are in accord with the publicized claims.

Mr. Campbell has expressed his personal disapproval of a system of censorship over advertisements, preferring that when a doubtful advertisement is submitted to a publishing medium there should be a voluntary submission of the matter to his organization for determining whether the claims in the advertisement are false or not, but no compulsory submission. His plan would operate by penalties against the false advertisers. The general sentiment in the conference was against any compulsory submission of advertisements to the Food and Drug Administration in advance of publication. Sentiment in the food trades, however, was for amendment of the law to prohibit false advertising, and for heavier penalties than are now provided for subsequent violations of the act. Suggested penalties for violation of the proposed prohibition of false advertising included fines and the issuance of a form of injunction against the use of the offending advertisement. Opposition was expressed to

seizure of the product falsely advertised, as long as the label on it is in accord with the act.

The opinion prevailed rather generally that the publisher and the radio station broadcasting any false advertising should not be made jointly liable with the advertiser, as had previously been suggested by some.

It was felt also that the administration of the proposed advertisement clauses should be "constructive"; that is, that the advertiser should be given opportunity to change his methods to comply with the act where he may have transgressed inadvertently. Elimination of the "distinctive-name" provision of the present act was advocated. This provision takes out of the operation of the present law any product which has a distinctive name of its own, and is not called by the name of any of the generally recognized foods. The Food and Drugs Administration feels that the provision has handicapped its work.

Prohibition of deceptively shaped and slack-filled bottles and packages also was favored by most of the food delegates. This type of receptacle often is used to deceive the customer into the belief that he is receiving more for his money than is actually the case.

Another proposal was for establishment of definitions and standards of purity but not of quality of foods. This would prevent adulteration, such as the addition of cheap foodstuffs to those higher priced, to increase the bulk at low cost. One delegate proposed that the Food and Drug Administration be empowered to issue standards of quality for foods, in general, much as such standards already are issued for canned foods under the McNary-Mapes amendment to the Food and Drugs Act. Under this amendment foods which fail to measure up to standards of tenderness, ripeness, or other factors are required to be labeled as substandard foods. The details of agreement or disagreement of the delegates on specific proposals were not made public in most cases.

In the field of drugs, suggestions were made that the labels on all drugs be required to bear the full formula of the contents of the receptacle. Inclusion of provisions in the amendment to prohibit the use of injurious ingredients in cosmetics was suggested by a delegate. Another proposal was that all testimonials and opinions on the value of the drugs must be signed. Opposition was expressed to proposals to license manufacturers of drugs, except in the case of producers of biologicals, arsenicals, and similar products. Probably the outstanding suggestion with respect to drugs was one that the United States Pharmacopœia standards and the National Formulary be abandoned and that a Government commission be set up to prescribe the drug standards.

A suggestion was made also that foods naturally containing harmful ingredients be prohibited, in addition to the present prohibition against foods in which harmful ingredients have been added. The conference in general opposed the writing of standards for food and drug products into the law. The sentiment for standards took the form of support for administrative standards, which would be more easily subject to change when revision appeared desirable.

AIDS TO THE CONSTRUCTION INDUSTRY

Adaptability of Metals for Various Uses

By HENRY D. HUBBARD, *Bureau of Standards*

Metals form an important group of structural materials and deserve corresponding attention in research and testing. Practically every division of the Bureau of Standards has problems of direct concern in the utilization of metals, and practically every Government department and industry profits by its research on the fundamentals of the properties and uses of metals.

Some 460 printed publications report the results of the bureau's researches involving metals and alloys. The bureau, however, contains a division devoted entirely to metallurgy equipped with a staff, apparatus, and facilities for purifying metals, for making alloys and castings, for mechanically working metal by rolling, drawing, and swaging and for studying their behavior under various service conditions and measuring their properties.

The Bureau published a source work "Aluminum and Its Light Alloys" (C76)—a timely publication which played a part in promoting the effective use of these light construction materials. Typical specifications current at the time are given, as well as a classified bibliography. It may be recalled that the metallurgical section of the Bureau suggested that duralumin be coated with a film of aluminum as a preservative, and experience has proven this effective in commercial practice where it is now firmly established.

Such processes as casting, forging, rolling, drawing, soldering, and welding have been investigated. Based on bureau work of the past two years, a practical method has been published for the use of foundry workers in determining the running properties of metal under conditions met with in casting. The research on the machinability of metals is a continuation of a study of the effect of machining on the properties of metal, to ascertain any deleterious effects of machining conditions. The program of metals research is formulated in the light of advice of a public spirited committee of experts, as a result of which a fundamental program is developed and the unit researches attacked in the light of the bureau's facilities and the relative urgency of the problems. With the cooperation of all divisions of the Bureau, this program is extended and applied to highly specialized fields.

One division measures the expansion of metals with high precision. The methods of measuring expansion have been successfully applied to such diverse fields as the flaking of metal enameled ware and the casting of gold inlays for dental restorations. Another division studies the magnetic and electrical properties of metals—their resistance, magnetic permeability, conductivity. Another determines melting and boiling

points of metals, in part to establish fixed points on the International Temperature Scale on which the melting point of gold is an important point.

The Optics Division is engaged, in part, in the study of radiation properties of metals—reflection, absorption, transmission, and especially the selective characteristics useful in minimizing or increasing the absorption and reflection. The fact that metals are poor radiators led to such practical conclusions as the use of nonmetallic paint on household radiators, the use of metal paints on the inside of metal attic roofs or the outside of steam pipes to avoid heat loss.

The Division of Chemistry has many problems involving metals—the development of new and improved methods of analysis, the actual analysis and certification of composition of standard samples, the development of metal electrodeposition and its remarkable application of chromium to the extension of service life of printing plates and the bright parts of structural metal equipment, such as plumbing fixtures. The Division of Chemistry also cooperates on the chemistry of metals with the entire system of research on this subject.

It is most interesting that the presence of impurities in commercial tin constituted a hazard to life and property, that the chemical measurement of such impurities was at first impracticable for the small amounts in which they existed. Optics came to the rescue and the measurements of the wave lengths of light characteristic of these impurities (lead and zinc) in tin offered a means of safeguarding the melting point of the pure tin used as safety plugs to prevent explosions in boilers. Chemical analyses now perform the same service.

When ordinary chemical analyses of "abnormal" steels (steels which resisted perfect case hardening) failed to show any relation between chemical composition and behavior, spectroscopic methods disclosed that the presence of more than one one-hundredth of 1 percent of aluminum (as alumina) was one of the characteristics of many of the so-called abnormal steels.

The Division of Engineering Mechanics studies the fatigue of duralumin and other materials; the efficiency of autogenous welding (a live subject in view of the recent rise in the use of welding to unite metal structural elements); the methods of design and failure of columns, girders, beams, and other built-up structures. The Division of Ceramics studies the refractories which line metal furnaces, the glazing of metals which had a notable application in the research which helped to mitigate the fish scaling of metal enameled ware. Through the Division of Building and

This is the fifth of a series of articles by Mr. Hubbard, Assistant to the Acting Director of the Bureau of Standards, outlining the work of the Bureau as it concerns the construction industry. These articles will cover research, testing, simplified practice recommendations, commercial standards, and the certification and labeling plan.

Housing, studies are made of the uses of metals in structures, retail prices of building materials, the minimum requirements for building codes for dwellings.

Two encyclopediac volumes have been compiled of technical specifications for metals and metal products for the use of purchasing agencies, both public and private. Under the auspices of two divisions, trade standards and simplification projects for metal products are developed by industry and promulgated by the Bureau of Standards.

In the Division of Metallurgy proper, however, the metal research is not incidental but primary. Active research projects relate to the atomic structure of the crystals in metals, to the properties of metals and their effective utilization, to the processing of metals by heat treatment, to the causes of failure by corrosion, fatigue, wear, and exposure to elevated temperatures, and to many other pertinent aspects of the use of metals.

Several samples will show the fundamental nature of such work. The Bureau's laboratory and field research on fissures in rails showed them to be a most serious cause of rail failures and that a controlled rate of cooling of the rail after rolling would minimize the production of fissures. A practical method for measuring the flowing properties of molten metal in the mold was devised and published, a method which will doubtless replace the hit-or-miss methods hitherto in use. The cause of blistering on enamels on cast iron was studied and found to be due to a thin skin on the iron which readily oxidizes, forming carbon monoxide and dioxide which causes the blistering. The cure was found to be sand blasting, preheating, or adding agents to the molten metal to produce more graphitic carbon.

A typical structural problem was the unexpected sudden failure of heat treated bridge-cable wire which had been carefully galvanized. It was shown in fatigue tests that the pressure of hot-dipped galvanized coatings on steel decreases the endurance limit by as much as 40 percent while electroplated zinc coatings have no effect. To duplicate service conditions of bridge-cable wire a device was developed to produce a pulsating tension during the test simulating service conditions.

Study of surface films of corroded metal are in progress in view of a belief that the corrosion film of metal determines largely the rate of corrosion. Exposure tests are being made in various climates and studies of the resulting films on the metal are in progress. By means of extensive exposure tests of galvanized materials it has been found that marine exposure of such materials is very much less severe than certain inland industrial atmospheres.

A major line of work of the Bureau of Standards' engineering mechanics laboratory is to study the mechanical properties and design of structural metals, parts, and assemblies, such as columns, beams, girders, and bridges. The Hudson River Bridge, with a span of 3,500 feet, double that of any previous bridge, called for dependable official tests which were made for the Port of New York Authority. Scale models of the tower sections were tested as columns in the 10,000,000-pound capacity compression testing machine of the Bureau. The specimens were 24 feet long, with approximately one fourth the cross-sectional area of the actual tower section. Similar tests of a section of the Philadelphia-Camden Bridge

showed a strength equal to that contemplated in the design plus the factor of safety allowed.

The Bureau researches on metals as structural materials cover a program of research carefully formulated and frequently revised on the advice of a large group of metal technicians. Scarcely an aspect exists which has not received experimental attention from the Bureau, from foundry sands to structural members of giant bridges.

On request of the foundry industry, the Bureau cooperated in formulating a standard color code for marking foundry patterns to indicate to the molder by a distinctive color the functional action to be taken on each part of the pattern. The commercial standard is now in effect, having been accepted by 450 firms and associations who indicated in writing that the standard system will become their standard practice. In cooperation with the American Foundrymen's Association the Bureau developed methods for testing foundry sands, which put the specification and purchase of sand on a rational basis.

Since the structure and properties of a hardened steel are dependent on the critical rate of quenching and upon the cooling quality of the quenching liquid, the Bureau undertook an experimental research on the coolants and the cooling curves which they might be expected to give.

A new field for metallurgical research was entered by the Bureau in a cooperative investigation with the technical societies covering the properties of metals intended for service at high temperatures, such as oil-cracking stills, steam superheaters, etc.

The strength of welded joints is an important industrial subject. The recent movement toward the quiet effective welding method to replace riveting machines with its machine-gun chatter made it essential that the resulting strength and behavior of welded joints be investigated. Since the finished joint cannot be tested to destruction and usually not practicably by X-ray methods, the best recourse is to qualify the welders themselves. Experts of the Bureau believe that this can readily be done by testing specimens of the welding work of each applicant. They recommend that such qualification to be placed in the hands of educational institutions, especially in the technical departments.

Among the important contributions to construction technology are strain gages, several new types of which have been devised and constructed at the bureau. By means of these gages the deformations under stress during construction are measured. Thus, they permit comparison between computed and actual strains in structures and thus check up the accuracy of technical design and the data upon which such design is based.

Among metal constructions investigated by the bureau, are screws, metal lath, wire rope, metal roofing and flooring, welded joints, and many others. A research was made on "10,000 wood screws" from 12 different makers tested under axial load for holding power when inserted in 7 kinds of wood. For example roughness rather than fine finish was found desirable and, again, in a choice between two adequate screws the longer screw and the smaller diameter are to be preferred. The entire system of screw threads worked out by the National Screw Thread Commission is now a functional activity of the Bureau of Standards. The standards have been published thus promoting uniformity and simplicity in screw sizes and dimensions.

Another research developed important facts on thread-locking devices which are given in a report entitled "The Relation of Torque to Tension for Thread Locking Devices" (RP386). This gives the static loads and the corresponding torsional resistance to unscrewing nuts, with and without locking devices. Twenty-four firms cooperated by furnishing samples of their devices for test, and the results are available to the industry and the public.

Metal coatings protect against deterioration by wear, weathering, and chemical action. The Bureau's system for increasing the service life of paper-money-printing plates by a coating of chromium of one five-thousandth of an inch, electroplated on the base metal, resulted in a gain of 400 percent. Studies at the Bureau of zinc-coated wire showed a decrease in indurance of hot-dipped galvanized wire while electroplated wire was not affected.

As part of the program of special committees of technical societies, the Bureau is cooperating in zinc-coated steel products—sheet, wire, and hardware in various parts of the country and observing the relative behavior. A study is being made of the effective protection of the surface film of corroded metal in connection with the corrosion resistance of the metal base. Researches were made on lead-coated steel, nickel-plated plumbing fixtures, chromium-plated metals, brass- and bronze-plated hardware, cadmium-coated steel. A research on the seam corrosion of copper

roofing showed among other things that heating in soldering contributes to the degree and extent of the corrosion. To prevent corrosion of roofing copper, the Bureau found that the simple device of a strip of wood between the flashing and the roof suitably placed would retard corrosion, a service life of 50 years or more being predicted as against 20 heretofore.

In a cooperative research with the American Electroplaters Society and the American Society of Testing Materials, the Bureau of Standards has a program involving 7,000 sheet metal specimens exposed to the weather in widely different atmospheric conditions.

Metals of unprecedented purity are produced and the properties of alloys of such metals are studied. In one research, in cooperation with the Non-Ferrous Ingot Metal Institute, it was found that 600 copper-base alloy compositions were in use which might possibly be reduced to 20 classes, each of a standard prescribed composition. The significant properties of the metals cast in various ways are measured with the object of finding the optimum number of typical compositions and of developing standard specifications.

As part of the study of duralumin for airship construction, standard strips supported on air jets without other physical contact were subjected to 200,000,000 or more alternate bending cycles, since service in airships subjected the metal to alternating stresses of this order corresponding to 40 years of air flight.

GLASS CONTAINERS

Simplified practice recommendation R148-32, covering glass containers for cottage cheese and sour cream, has been accorded the required degree of written approval by the industry and may now be considered as in effect.

This recommendation, which was proposed and developed by the industry, is concerned with the base diameter, height of bottle, height of finish, cap-seat diameter, and over-all diameter of finish or roll of bottles, the capacities of which are 8-, 12-, and 16-fluid ounces.

USE OF LABELS IN SWEDEN

The Standards Commission of Sweden is considering the question of adopting a registered mark, which firms manufacturing goods according to Swedish Standard Specifications would be permitted to use on their products.

To obtain permission to use this stamp or label, a manufacturer would have to give strong guarantees that the goods in question comply in every respect with the standard specification issued. By reserving the right to take occasional samples in the open market, the Standards Commission could control the use of the label, as any proved abuse would make the erring firm liable to damages and deprivation of the right to continue the use of the mark.

Trade-marks are widely used in Sweden. These marks, however, have no reference to the quality of goods but only serve to identify the products of the various makers. The good reputation of a manufacturer will automatically attach to any products carrying his trade-marks.

HOSPITAL MATTRESSES AND PILLOWS

The American Hospital Association has drafted tentative specifications for hospital and institutional mattresses and pillows, as proposed commercial standards for these commodities.

The tentative specification for mattresses covers 4 types and 2 grades of all-hair and inner-spring hair mattresses. Requirements are given for all materials entering into construction, as well as for workmanship, sizes, and weights. Pillows are to be made of a specified grade of ticking filled with hair or goose feathers conforming to definite requirements of quality and cleanliness.

These tentative specifications have been circulated among approximately 500 manufacturers from whom the hospitals customarily purchase mattresses and pillows. It is thought that this list well represents the entire country. Any manufacturer, however, who has not received copies of the tentative specifications for comment may obtain them by writing to the Bureau of Standards.

COATED ABRASIVE PRODUCTS

Simplified practice recommendation R89-32, covering coated abrasive products, as revised by the standing committee of the industry, is now available in printed form, according to formal announcement made by the Bureau of Standards.

Copies of this simplification program, which is concerned with the size, backing, and coating of various kinds of coated abrasive products, can be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C., for 5 cents each.

PROTECTION OF BUYERS AGAINST FALSE CLAIMS

Information of Sale of Goods Effected Through Misrepresentation Submitted to Federal Trade Commission Will Cause Investigation

By WILLIAM E. HUMPHREY, *Member Federal Trade Commission*

What can a buyer do when he discovers he has bought a product which fails to live up to the claims made for it?

If the article has not fulfilled the promises of advertising, labels, circulars, letters, or any other printed matter distributed in interstate commerce, or within the District of Columbia, the buyer has a right to ask the aid of the Federal Trade Commission. A letter to the Commission explaining just what has happened will set the Government machinery in motion. The Commission has the power to enjoin all unfair methods of competition in interstate trade or in the Nation's Capital.

Thousands of cases of dishonest advertising are handled by the Commission. Ridiculous healing claims are made for all sorts of medicinal preparations. Cheap imitations of well-known food brands are packed in containers resembling popular articles. "Manufacturing" companies have been found in some cases merely to be small offices with no manufacturing equipment. Use of the word "manufacturing" in the name of a sales concern is a popular method of stimulating confidence in the buyer that the article is produced by a large and responsible organization which is likely to stand by its customers and replace faulty goods. It also creates the impression that the middleman's profit is avoided.

Hosiery labeled "silk and rayon" has been found to contain only a few silk threads woven in the top of the stocking.

"Buy three shirts and get a fourth free", said an advertisement. In this case the price actually was based on four shirts, and the free shirt was in no sense a gift. This is considered unfair competition.

The law which created the Federal Trade Commission makes this declaration: "That unfair methods of competition in commerce are hereby declared unlawful."

The buyer who has been victimized by deceptive claims should give the facts to the Commission. His case will be turned over to the chief examiner of the Commission for an investigation and report. If it is found from this investigation that the law has been violated, corrective action will be taken. In many cases the Commission will permit the offender to sign a statement of facts covering the methods he used and allow him to agree not to continue such practices. By this means the purpose of the law to prohibit unfair competition is carried out. It is described as a stipulation, and is signed voluntarily by the producer. The stipulation effectively stops the illegal practice at once and involves little expense to the Government.

If the producer challenges the statement of facts brought out by the Commission's inquiry, or if it is decided not to permit a stipulation, the Commission may issue a complaint and hand down an order declaring that the producer is using unfair methods. Then if the order is violated the Commission can take it to a United States Court of Appeals. If the court

affirms the order, the producer will be guilty of contempt of court if he continues the unfair methods.

The average cost of such a stipulation to the Government is less than \$5; the average cost of complaint and trial of a case is \$2,500.

Standing as a guardian of the buyer, the Commission has driven from the markets large numbers of fraudulent products.

The largest number of offenders are purveyors of so-called patent medicines, cosmetics, fat reducers, hair restorers, and hair dyes. In this phase of its work the Commission has protected the public by exposing, eliminating, and restraining the fakirs, imposters, and others that have preyed on the ills, sufferings, credulity, and vanity of humanity to the tune of more than \$500,000,000 per year. More than 16,000,000,000 copies of daily, weekly, and monthly periodicals are printed and circulated every year, and every copy carries advertising matter intended to induce the readers to buy some article of commerce. Approximately \$1,000,000,000 is paid publishers annually by advertisers. The Commission, with the help of newspapers and magazines since their conference of November 12, 1928, has reduced fraudulent advertising more than half.

COTTON DUCK

Simplified practice recommendation R27, covering cotton duck, has been reaffirmed, without change, by the standing committee of the industry.

This recommendation, which is concerned with the stock varieties of sail and wide duck, has been instrumental in effecting a reduction in the number of widths of this commodity from 460 to 90, or approximately 80 percent.

CONCRETE BUILDING UNITS

The revised simplified practice recommendation R32-32, covering concrete building units, is now available in printed form. Copies can be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C., for 5 cents each.

In the current schedule, which was revised by the standing committee of the industry, the length dimension for three items was changed from the nominal dimension of 12 inches to the actual dimension of 11¾ inches; the maximum permissible variation for block and tile, over and under the given dimensions, was placed at ¼ inch; and in the case of concrete brick, it was decided to follow the tolerances prescribed by the American Society for Testing Materials in connection with clay and sand lime brick masonry units, so that the tolerances of concrete brick will be ⅛ inch in height, ⅛ inch in width, and ¼ inch in length.

VALUE OF FEDERAL FOOD STANDARDS

Quality Standards in Retail Trade Suggested As Guide in Selecting Food Products

How can Federal standards for food products be used by the housewife in her daily marketing?

Homemakers who are interested in the efficient and economical management of their households have heard of "quality grades." They wonder, naturally, just how these grades are indicated for the consumer and how far they, the housewives, can apply them. Price is not necessarily an indication of quality. A more certain guide in the daily trips to the food markets is desirable.

Quality standards have been worked out for a great many kinds of foods by the Bureau of Agricultural Economics of the United States Department of Agriculture. These grades or standards were originally established for the producer and shipper rather than the housewife who buys at retail. In most cases, the marks, names, or other indications of grade are expressed so as to guide the wholesalers and people who buy in wholesale quantities, like cafeteria, hotel, and institution managers. To the customer in the retail store many of these designations are meaningless; usually they do not even appear on the crate or basket from which the retail purchase is taken.

The housewife has to deal with many kinds of foods and with several qualities of most kinds. To some extent she has learned to associate quality with a brand or trade name, and recently she has become aware of the importance of reading the statements of weight and lawfulness on the labels of packaged and canned goods. Utilization of the quality grade does not mean that all the lesser grades will be passed over and only the choicer qualities sold. On the contrary, for many purposes the fancy grades are too expensive and a medium or even low grade will do.

Official quality grades might be placed in three fairly well-defined groups with respect to the consumer's ability to use them.

The first group includes those foods which have grade designations easily recognized by the housewife. In this group there is a stamp, a tag, a certificate, or some other indication of grade that can be seen and readily understood. The second group includes foods that are sold by quality grades at wholesale, particularly fruits and vegetables, but not so easily identified by the retail customer. Canned farm products comprise the third group. The labels on the cans must bear truthful statements, but at present they give little information about the quality grades of the contents.

Beef, turkey during the holiday season, eggs, butter, and cheese are in the first group. Canned chicken and chicken products might be roughly included, since those put up by a number of firms now bear a label denoting wholesomeness, if not quality grade. This is now true of some dressed rabbits.

Turkeys have been marked by grade during the holiday season for the past 5 years. A tag or band on the leg is sometimes used. This year the Government-graded turkeys will be shipped to dealers in crates or barrels marked by quality designation, but the individual buyer will have to take the dealer's word for what she is getting. If enough housewives ask in advance for Government-graded turkeys, dealers will

be more inclined to carry them, past experience has shown. Other ways of indicating the grades of eggs, butter, and cheese are used.

The Bureau of Agricultural Economics has worked out standards for practically all fruits and vegetables, and each year a larger quantity is sold under these grades. The more the housewives acquaint themselves with these names and ask for them, the more the service will be extended to benefit them. Dealers will stock with goods of the grade desired, and possibly make more effort to retain the identifying marks on containers to show their customers.

In the third group of products (the canned goods) the housekeeper has an indirect way of finding out what grades she is getting. The Bureau of Agricultural Economics suggests that if she is a large buyer she might buy and compare several cans of the same article put up under different brand names and satisfy herself as to which brand gives her the quality she is interested in at the price she wishes to pay. She could score each brand on a basis of the quality factors enumerated in the Federal standards.

MINERAL AGGREGATE PRODUCTION SCREENS

Simplified practice recommendation R147-33, covering wire diameters for mineral aggregate production screens, has been accorded the required degree of written approval by the industry and may now be considered as in effect. This recommendation, which was proposed and formulated by the industry, covers the diameter (in inches) of light, standard light, standard heavy, and heavy wire used for specified widths of clear openings in screens for producing mineral aggregates.

It is expected that the simplified schedule will be instrumental in effecting a reduction of approximately 75 percent in the number of wire diameters now in use.

STEEL REINFORCING SPIRALS

The revised simplified practice recommendation R53-32, covering steel reinforcing spirals, is now in print, and copies can be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C., for 5 cents each.

The original recommendation was drafted by the industry and made effective in 1926. It reduced the then existing variety of rod diameters to four.

In the present program, as revised by the standing committee of the industry, these diameters have been retained, and there are also shown the corresponding cross-sectional areas. To facilitate the use of the recommendation by specifiers of spiral reinforcement, the revised edition contains a table showing the application of the sizes of reinforcing spirals to all normal column core diameters with one-fourth-inch intervals of vertical spacing between successive turns.

ACID IN LIBRARY AIR

In experimental tests recently completed by the Bureau of Standards it was found that air passing into libraries can be readily cleansed of acid gases.

Since previous work at the Bureau of Standards had shown that air polluted with acid fumes resulting from combustion of fuels is a deteriorant of papers stored in libraries, an experimental study was made at a Washington library of means of removing the acid. This can be accomplished, or course, only where air conditioning is practiced. In such treatment the air is washed with water, and by adding sufficient sodium compounds to the wash water to maintain a fixed alkalinity, complete removal of acid from library air containing as much as 0.42 parts sulphur dioxide per 1,000,000 was effected. Without alkaline treatment, the wash water removed practically no acid from the air.

An added advantage of the use of the alkaline wash water is that it retards corrosion of the conditioning equipment. This is important because in absence of such treatments the acid in the air of highly polluted areas has necessitated large replacements of conditioning equipment within less than a year's use. The alkaline treatment is simple and the cost of it is negligible.

BUREAU'S EXHIBIT AT "A CENTURY OF PROGRESS EXPOSITION"

The work of the Bureau of Standards will be shown visitors to "A Century of Progress Exposition," Chicago's World Fair of 1933, in the form of striking exhibits and publications.

The exposition offers a liberal education in the exhibits of science in their application to industry and in the world trends of creation of products and buying interests. It offers an immense fund of useful general information in the world show of art and art products and of manufactures and methods in all lines.

The commercial-standardization activities of the Bureau will be shown in the form of posters outlining the benefits received by consumers from adoption of simplified practice recommendations, commercial standards, and the application of quality-identifying labels on commodities. Among the Bureau's exhibits are the following:

Model of wind tunnel.—The wind-tunnel exhibit illustrates the application of wind tunnels to the measurement of the air resistance of automobiles. The present-day conventional model uses about 11 horsepower to overcome the resistance of the air at 50 miles per hour, as compared with about 16 horsepower for a car of a decade ago. It is, however, easily possible to reduce the horsepower to overcome air resistance at 50 miles per hour to about 4 horsepower. A model giving that performance and a model of a conventional car are placed side by side in the exhibition wind tunnel, which may be operated to show the order of magnitude of the relative resistance.

Precision gage blocks.—Precision gage blocks are blocks of hardened steel having two opposite surfaces plane, parallel, and a precise distance apart. They are used in technical laboratories and in shops as reference standards of length for checking measuring

instruments and limit gages of various types, and as distance pieces for precise mechanical work. Blocks intended for reference standards for precision work of high accuracy have their gaging surface plane and parallel to within 0.000002 inch, and their lengths accurate to ± 0.000003 inch per inch of length or fraction thereof. The flatness of the gaging surfaces permits them to be brought into such accurate contact that by bringing together two or more blocks, a single gage whose length is the sum of the component blocks is formed. Thus, with this set of 34 blocks ranging in length from 0.1 inch to 4 inches, dimensions from 0.3 inch to 10 inches may be obtained in increments of 0.00025 inch.

Steel-testing machine.—During recent years testing machines have been more and more extensively used by both the manufacturers and users of engineering materials. The increasing use of metals having high strength makes it necessary to test the strength of materials to prove that they have the required strength and other properties. The use of unsuitable material might cause failure of the machine or structure and endanger life and property. The testing machine is invaluable when developing a new alloy or other material because it allows the strength and other properties to be determined in the laboratory. If testing machines were not available, it would be necessary to use the material in actual structures and determine its suitability from experience with the structure—a long, dangerous, and expensive procedure. There is little doubt that the testing machine has played a very important part in the great improvement in materials which has taken place in the past 25 years. Without it the art of fusion welding for high-pressure piping, the use of high-strength steel for bolted flanges in pipes, automobiles, and other applications, too numerous to mention, would have made little progress.

NEW FEDERAL SPECIFICATIONS

Eleven specifications were acted on by the Federal Specifications Board during May. Of this number 6 proposed specifications and 5 revisions have been sent out for official comment and criticism.

Copies of these specifications are available in mimeographed form, and further information can be obtained from the Federal Specifications Board, Bureau of Standards, Washington, D.C.

| New designation | Specifications | Old F.S.B. No. |
|-----------------|--|----------------|
| PROPOSED | | |
| FF-S-91 | Brick, clay, sewer | |
| Z-C-571a | Shingles, cement-asbestos | |
| EE-M-101a | Lamb | |
| JJ-H-571 | Forks, hay and manure | |
| TT-I-535 | Grinders, bench, hand-power | |
| WW-P-431a | Unions, brass or bronze, 250-pound | |
| WW-P-501 | Mineral or rock wool, pipe covering and cement | |
| GGG-D-671 | Steel, corrosion-resisting; castings | |
| | Tools, blacksmiths' and horseshoers' | |
| REVISIONS | | |
| FF-S-91 | Screws, machine (including screws, set) | 548 |
| Z-C-571a | Coconut, prepared | |
| EE-M-101a | Matches, safety (full-size, in boxes) | |
| JJ-H-571 | Hose, fire, linen, unlined | 527 |
| TT-I-535 | Inks, drawing, waterproof, colored | 379 |
| WW-P-431a | Pipe, steel, welded and seamless (black and zinc-coated) | |
| WW-P-501 | Pipe-fittings, cast-iron (threaded) | 489 |
| GGG-D-671 | Drills, hand, with hollow handle | 509 |

AMERICAN STANDARDS ASSOCIATION

Current developments of the following standardization projects under the auspices and procedures of the American Standards Association have been reported by that association:

Putty.—Acting upon the suggestion of the Federal Specifications Board, the Standards Council of the American Standards Association has decided to invite the American Society for Testing Materials to assume sponsorship for putty in place of the Federal Specifications Board.

Coal.—A new subcommittee on the application of scientific classification of coal has been appointed by the chairman of the technical committee on use classification, a subdivision of the sectional committee on classification of coal. The new subcommittee will act as a correlating committee to harmonize the scientific classification of coal as prepared by the technical committee on scientific classification with the practical use classification of coal as worked out by the technical committee on use classification. The American Society for Testing Materials is sponsor for the project on classification of coals.

Hosiery lengths.—In compliance with the request of the general conference of the industry the Bureau of Standards submitted to the American Standards Association the commercial standard for hosiery lengths for approval as American standard. This commercial standard has been developed in cooperation with the National Association of Hosiery and Underwear Manufacturers through committees and conferences in which representatives of manufacturers, distributors, and consumers participated. On April 18, 1933, acceptance had been received from 6 associations, 6 departments of the Federal Government, and 289 companies engaged in manufacturing and distributing hosiery. The standard provides methods of measurement and also specifies the lengths of hosiery, together with tolerances, for the guidance of producers, distributors, and consumers. The various types of hosiery covered include ladies full-fashioned, seamless, and ribbed cotton hose, men's, boys', children's, and infants' hosiery of various types.

Gypsum standards.—The American Society for Testing Materials has submitted the following five specifications for gypsum and gypsum plasters for approval as American standards under the proprietary sponsorship method: Gypsum, calcined gypsum, gypsum plasters, gypsum molding plasters, and gypsum pottery plaster.

These specifications were developed by the A.S.T.M. Committee on Gypsum during the period of active study extending over several years prior to 1930. An examination of standards in the field of gypsum and gypsum plasters indicates that these particular specifications are either the only standards for these commodities or, in those cases where other standards have been found, it has been noted that technical requirements are practically identical with those given in the A.S.T.M. specifications. All of these standards are in use in industry and are currently in demand.

The specifications covering gypsum are used in the manufacture of portland cement, plate glass, wall plasters, structural products, and pottery. They are also applicable when gypsum is to be used as fertilizer. The specification for gypsum plasters has an extensive

use in building construction, and this specification, as well as the specifications for gypsum and calcined gypsum, is referred to in building codes and ordinances on plastering. The specifications for gypsum molding plaster cover its use in ornamental work, such as interior embellishments and cornices on walls and ceilings; also for staff work, plaster casts, etc. Gypsum pottery plaster is primarily used in the manufacture of molds of intricate design and outline such as used in the shaping of clay, terra cotta, and ceramic forms.

TAPERED ROLLER BEARINGS

A revised draft of simplified practice recommendation R67, covering tapered roller bearings, which was prepared by the standing committee of the industry, has been mailed to all interests in the industry by the Division of Simplified Practice of the Bureau of Standards.

In addition to bringing the simplified practice recommendation into accord with the revised standard of the Society of Automotive Engineers for tapered roller bearings, the proposed revision covers sizes up to 12-inch bore, together with certain steep angle bearings for naval and general use.

At a meeting held in December 1931 the ball and roller bearing division of the standards committee of the Society of Automotive Engineers voted unanimously to recommend cancelation of the tapered-roller-bearing standards of the 1931 SAE handbook and the substitution of a newly proposed schedule in the 1932 edition. This revised standard was formally adopted by the standards committee at its annual meeting on January 25, 1932. In view of this action on the part of the Society of Automotive Engineers, the standing committee in charge of simplified practice recommendation R67 submitted the proposed revised draft of that simplification.

The original draft of the simplification was prepared and adopted on February 3, 1927, by a general conference representative of all interests concerned. It was subsequently accepted by associations and individual producers, distributors, and users representing more than 80 per cent of the total annual output, and was promulgated by the United States Department of Commerce.

In transmitting the revised recommendation, the acting chairman of the standing committee having charge of the schedule, E. Wooler, chief engineer of the Timken Roller Bearing Co., made the following explanation:

The extended sizes in the medium series up to 11 inches and in the heavy series up to 12 inches were carefully worked out to our present-day knowledge, but they are not ready yet for standardization. However, their recommendation as simplified practice should assist considerably in making these bearings adaptable as a standard in the future. We already have a considerable number of large-bore bearings and they will become as complicated as the original list of small bearings unless some such steps as the simplified-practice scheme be adopted. The steep-angle list is a selection of bearings in even increments from $\frac{3}{4}$ -inch up to 2-inch bore, which include all the large production series in this type, although the number of other steep-angle bearings is not so large as the conventional bearings.

The revised schedule is to be effective one month after announcement by the Bureau of Standards that the required degree of support has been recorded.

WIRE-ROPE TERMINAL ATTACHMENTS

For some time past there has been in effect in England a comprehensive series of British standard specifications for wire ropes for use in various sections of the engineering industry.

Safety in lifting not only necessitates the use of a good quality of wire rope, but, if satisfactory life and useful service are to be obtained, it is essential that suitable and reliable terminal fittings should be used, and that the rope be connected to them in an efficient manner. In view of the importance of the subject, a committee was appointed by the British Standards Institution to consider the preparation of suitable standards for wire-rope terminal attachments.

Four new specifications constitute the initial work of the committee, namely, no. 461—1932, dealing with Bordeaux connections; no. 462—1932, dealing with bulldog grips; no. 463—1932, sockets; and no. 464—1932, dealing with thimbles. The question of dimensions presented no small task and in certain instances essential dimensions only, such as are necessary to provide suitable fittings of adequate strength which are interchangeable where necessary, have been specified. Where strength is the sole consideration, minimum dimensions have been given. In this way manufacturers are able to adapt their individual patterns to improve designs, and future developments will not be hampered.

STANDARDIZED FORMS FOR COMPENSATION CLAIMS

Efforts are now being made by the National Council on Compensation Insurance, through its members and their representatives, to have adopted for use in all States five forms to be used in connection with the reporting and administration of claims. The forms, which have been approved by the International Association of Industrial Accident Boards and Commissions take care of all general types of claims and replace more than 400 forms now used.

A preliminary survey conducted some time ago by a committee representing six members of the National Council on Compensation Insurance revealed an outstanding multiplicity of claim forms. In the 38 States in which the companies write workmen's compensation the more than 400 forms were found to contain all manner of variations. Forms used for correspondence purposes in different States varied in both the nature and number of questions asked. After reducing the claims to five general types, the committee of the National Council on Compensation Insurance and the committee on forms of the International Association of Industrial Accident Boards and Commissions drafted their proposed forms, which were approved by the international body in a resolution adopted at its convention.

Advantages which will be gained by the use of a standardized claim form are: (a) The economic advantage to the carriers through materially reduced printing, handling, and storage costs; (b) increased expedition and efficiency in handling the various claim reports (this advantage will accrue not only to the insurance carriers, both in their home offices and in their branch offices where employees handle claims covering several States, but also to employers

as well, particularly where such employers are engaged in business in more than one State); (c) the use of uniform forms should result in a more prompt and complete reporting of accidents with resulting economies in claim costs.

The National Council on Compensation Insurance has circularized its members, explaining the program and requesting that the field representatives in the several States cooperate with the national council and the committee in their attempt to secure the adoption of these forms.

GRADING RULES FOR FACE BRICK

Face brick has joined the growing list of building materials which are being sold under grading rules that protect both the buyer and the seller.

Standard grading rules to be used as a basis for the sale of face brick have just been adopted by the American Face Brick Association. Four classifications are given in the rules, namely, uniform shade, mingled shade, substandard, and cull. All first-quality brick are placed in the first two classifications, which have stringent requirements as to dimensional variations, chippage, color, and warpage.

The rules as adopted are based upon the simplified sizes of brick adopted in 1923 as simplified practice recommendation R7. At the time a size of 8 by $3\frac{7}{8}$ by $2\frac{1}{4}$ inches was made standard for smooth-face brick, while a size of 8 by $3\frac{3}{4}$ by $2\frac{1}{4}$ inches was made standard for rough-textured face brick. It was recognized then, as now, that it is impossible to manufacture brick conforming exactly to these sizes, but no limitations as to the variation in sizes were worked out. The new rules cover this point thoroughly.

WOOL AND PART-WOOL BLANKETS

The recommended supplement to Commercial Standard CS. 39-32, Wool and Part-Wool Blankets; on the relative size of type for use in advertising wool and part-wool blankets was circulated to the industry for acceptance on April 26, 1933.

This supplement has the approval of the standing committee, and this action is taken at their request.

The recommendation, if accepted, will be included as paragraph 7 of the Commercial Standard.

The supplement reads as follows:

In advertising part-wool blankets where the "wool" or the words "part wool" are used in any form, the phrase "Not Less Than ---- Percent Wool" shall, as a general rule, be shown in the same size, style and legibility of type as the words "part wool" and shall follow immediately after the words "part wool", or be set up within three consecutive lines in the following order and relative position:

Part Wool
BLANKETS

Not Less Than ---- Percent Wool

except in the following instances:

(a) When the words "part wool" are shown in larger than 18-point type, the phrase "Not Less Than ---- Percent Wool" shall in no case be shown in less than 18-point type, and in no case in less than one third the type size of the phrase "part wool".

(b) When the words "part wool" are shown in smaller than 18-point type, the phrase "Not Less Than ---- Percent Wool" shall always be in not less than the same size and set in the same style as the words "part wool".

MECHANICAL "HAND" DEVELOPED TO "FEEL" CLOTH

The "handle" or "feel" and the "drape" of fabrics are of importance to the user of textiles: for example, in clothing and home furnishing, as well as to the textile designer, and to the textile-finishing mill which must produce fabrics having a given "handle" or "drape."

They are psychological qualities which are commonly expressed only in the vaguest terms. Two instruments have been developed recently in the textile section of the Bureau of Standards for the evaluation of certain of the physical attributes of cloth that affect the sensations which contribute to "handle" and "drape." One is called the flexometer, the other the compressometer.

The flexometer provides a means for measuring the flexural attributes of cloth, paper, sheet rubber, and similar materials. A pair of test specimens of standard dimensions are mounted in opposite angles formed by 2 vertical intersecting plates, 1 of which is fixed and the other movable on a spindle. The work done in folding the specimens to various angles between the plates, the work recovered when they are allowed to unfold, and the work lost are determined. These quantities are a measure, respectively, of flexural work, flexural resilience, and flexural hysteresis of the specimens. They are related to the stiffness and creasability of the cloth.

The compressometer provides a means for measuring the compressional attributes of cloth and similar materials. With it, the thickness can be measured under a known pressure, which can be increased or decreased gradually and continuously. Thus the thickness under a given pressure and the change in thickness under either increasing or decreasing pressure can be determined. The compressibility and compressional resilience of the material are computed from these data. These attributes are related to softness or hardness and springiness as discerned by squeezing the cloth between the fingers.

Description of the flexometer and the compressometer, together with data illustrative of the results obtained with these instruments, appeared in the May and June issues, respectively, of the Bureau of Standards Journal of Research.

RECOMMENDED MINIMUM REQUIREMENTS FOR SMALL DWELLING CONSTRUCTION

In their search for sound and economical construction home builders will find much of interest in a report of the Bureau of Standards entitled "Recommended Minimum Requirements for Small Dwelling Construction."

The primary purpose of this report, which is a revision of similar suggested requirements issued several years ago, is to provide suggested minimum requirements that may be followed by local building officials and committees in connection with redrafting their building codes. The revised report goes further, however, in providing supplementary information helpful to the building official in carrying out his duties and also to the prospective home builder who wants to get a well built house. The results of ex-

perience, research, and developments in construction methods and materials have all been taken into consideration in preparing the new suggested requirements.

Numerous illustrations help to give an idea of what constitutes good and poor practice, while such items as allowable thicknesses of masonry walls, proper bracing of frame buildings, and provision for adequate fireproofing serve to illustrate the nature of subjects covered. An appendix is a prominent feature of the report.

The report deals only with construction of dwellings intended for occupancy by 1 and 2 families. At the time the original report was drafted, 1921, there was a great scarcity of dwellings throughout the country, especially the small 1- and 2-family type. While this situation is not so pressing at this time there is, nevertheless, an enhanced interest in sound and economical construction owing to the growing conviction that home ownership is of deep significance to the welfare of the country.

So strongly has this conviction been impressed upon responsible civic leaders that more than 3,000 of them recently came to Washington for the purpose of evaluating available facts about home ownership and stimulating greater opportunities for its fulfillment. This gathering—the President's Conference on Home Building and Home Ownership—emphasized the importance of sound building regulations.

SIMPLIFICATION OF ELECTRIC LAMPS FOR RAILWAY SIGNALING

The fourth, and perhaps the most important, of the series of British standard specifications dealing with electric railway-signaling equipment has been issued by the British Standards Institution. The new publication concerns electric lamps.

The number of types of signaling devices employing lamps is so large that it is not surprising that a large variety of lamps, differing in voltage wattage, size, and shape of bulb and filament, should be in use, state the announcement of the British Standards Institution. As a result of numerous tests a committee appointed by the institution has been able to narrow down the series to a comparatively small range of lamps designed to meet every possible signaling requirement.

The specification contains clauses defining tests on the lamps and dealing with the suitability of the various lamps for particular signalling purposes. Then follow the schedules giving the rating, dimensions, efficiency, and life of the lamps. A feature of particular interest is the inclusion of an appendix showing, in graphic form, the relation between the voltage, life, and efficiency of the lamps.

SALT PACKAGES

The standing committee of the industry has reaffirmed, without change, simplified practice recommendation R20, covering salt packages.

This simplification program, which was proposed and formulated by the industry, is concerned with capacities, in pounds, of the various types of containers.

WROUGHT-IRON AND WROUGHT-STEEL PIPE

The revised simplified practice recommendation R57-32, covering wrought-iron and wrought-steel pipe, valves, and fittings, is now available in printed form, and copies can be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C., for 5 cents each.

The revision, as proposed and formulated by the industry, eliminates the $3\frac{1}{2}$ -inch nominal inside diameter pipe from table 3, "Double extra-strong" pipe, which was included in the original recommendation.

This simplification program has been instrumental in reducing the number of stock sizes of pipe from 62 to 48, and in effecting a corresponding reduction in the variety of sizes of valves and fittings.

NEW FOOD DEFINITIONS PROPOSED

The advisability of adopting new definitions and standards for molasses and several egg products is under consideration by the United States Food Standards Committee.

The products involved are New Orleans molasses, table molasses, cooking molasses, liquid whole eggs, mixed eggs, frozen egg, dried egg, egg yolk, frozen egg yolk, and dried egg yolk.

Copies of the proposed definitions can be obtained from W. S. Frisbie, chairman, United States Food Standards Committee, Food and Drug Administration, Washington, D.C. The committee invites criticisms and suggestions from food officials, consumers, and the trade.

TEXTILE-MACHINERY PARTS

A general conference of manufacturers, distributors, and users was held in New York, in the rooms of the Association of Cotton Textile Merchants, 40 Worth Street, on June 2, to develop simplified practice recommendations for items used in the textile industry.

The agenda for the conference, issued by the Division of Simplified Practice of the Bureau of Standards, in cooperation with the simplified practice committee of manufacturers, covered hole sizes for taper tubes for filling cop winders, and for bobbins for filling cop winders, and basic dimensions for wooden cones for warping and knitting yarns.

The conference was the second of a series to be held in connection with a general program of simplification of textile-machinery parts. The first was held in June 1932, and resulted in the adoption of a program for paper cones and tubes, which has been since issued as simplified practice recommendation R143-33.

The need for simplification in the machinery field of the textile industry was suggested to the Division of Simplified Practice by E. F. Parks, works manager and chief engineer of the Universal Winding Co., Providence, R.I. In requesting the division to cooperate in this work, he summarized the situation as follows:

To date we have manufactured 163 distinct types of spindles with 1,900 varying sizes and, in so doing, naturally our manufacturing costs and inventory are inflated. Unless some standards are established, the list will ever be increasing. New industries now have no tabulations of standards to order equipment from and the older textile indus-

tries most frequently order their new machines equipped with spindles "same as last" or "with spindles to fit bobbin or tube as per sample herewith".

The "same-as-last" customers might easily pick some standard spindle, if such were tabulated, that could be used equally well, and the "sample herewith" is usually picked at random and generally only varies from what might have easily been standard had no error been made in its manufacture or had it been made to conform to some standard bobbin, quill, or tube.

From our records of some 36 years, we have prepared our own lists and drawings of what we consider standard, particularly with reference to the hole size. These standards are called for on approximately 80 percent of our orders, and on the remaining 20 percent they are special. On one machine alone, we have 30 standard style spindles with 200 different sizes, and in the special spindles we have 74 styles with 1,916 varied sizes. We naturally would not expect the industry to standardize according to our records alone, but believe it will meet nearly the list which other manufacturers would desire to standardize upon also.

In response to this request, the Division of Simplified Practice arranged a meeting of manufacturers and other interested organizations, to consider Mr. Parks' suggestion and to take whatever action was considered necessary to insure definite results. It was the unanimous opinion of those attending this meeting that there existed a need for developing sound simplification programs for various items, such as spindles, bobbins, spools, paper cones and tubes, and similar parts.

Simplified practice committees were appointed to represent different groups in the industry, and it is the programs of these committees which are now being brought up for final action by all concerned. It is planned to hold general conferences to consider other items, as rapidly as the committees complete their tentative plans.

LABELS FOR CANNED FRUIT AND VEGETABLES

Regulations under the Canadian Meat and Canned Foods Act affecting the marking on fruit and vegetable containers and packages and the standards of quality for specified fruits and vegetables have been amended by order in council, according to a report received from Assistant Commercial Attaché at Ottawa.

The changes require indications on labels of the presence of preservatives, color, glucose, or other substitute for sugar, the net weight of contents on non-standard containers, size of containers on ends of boxes or cases and declaration of standard of quality, where such products have been standardized, and prescribe amended or new standards of quality for canned corn, peas, lima beans, carrots and beets, grapefruit, cherries, and fruits for salad.

BASIC SHEET SIZES OF PAPER

Simplified practice recommendation R22-33, covering paper (basic sheet sizes), has been accorded the required degree of written approval by the industry, and may be considered effective as of June 15, 1933.

Ten sheet sizes were added to this revised simplification program by the standing committee of the industry. Specific headings for the various sections of the recommendation also have been included by the committee.

VITRIFIED PAVING BRICK

Simplified practice recommendation R1-32, covering vitrified paving brick, has been reaffirmed, without change, for another year by the standing committee of the industry.

A survey of the 1932 production of vitrified paving brick revealed that 81.5 percent of the total shipments conformed to the six sizes listed in the simplified practice recommendation.

HOME-RENOVIZING CAMPAIGN STARTED IN WASHINGTON

Expenditures reaching \$5,000,000 for labor and materials by local property owners during the next 6 months is the goal set by a committee of business and civic leaders now actively sponsoring the Renovize Washington Campaign, according to the Home Modernizing Committee of the Bureau of Standards.

The first announcements of the drive include a contest for choosing the best plans for completely modernizing and equipping a dilapidated house more than 60 years of age. Practically every building trade will be utilized in the public demonstration of home remodeling in connection with the day-to-day modernizing of this old structure with local housing experts in attendance to answer home owners' questions. In order to make provisions for immediate financing, leading financial institutions are represented on the local committee, and the District Bankers' Association has made available a special credit pool to further facilitate the making of needed loans to home owners.

According to current reports received by the Home Modernizing Committee of the Bureau of Standards, this local campaign represents another link in a national chain of similar organized property improvement drives conducted in cities throughout the country to stimulate local employment and business and stabilize home values. Of these campaigns the most outstanding to date is the Renovize Philadelphia Campaign, of which the local organization estimates that \$14,000,000 of the total expenditure by property owners of \$21,000,000 will go directly to labor and furnish approximately 1 month's work for 138,000 men.

A responsible writer recently stated that "There are millions of residences in the United States of an average age of between 13 and 15 years. Hundreds of thousands are much older in the East, some running to a century or two."

A community, by making carefully planned repairs in accordance with good designs, raises its real-estate values, and advances the commonwealth through such improvements. Chambers of commerce, leading newspapers, civic organizations and clubs have joined in campaigns to encourage citizens to improve their properties. Of great importance is the circumstance that banks in many cities have announced their willingness to lend liberally to finance improvements. Bankers generally know that a few hundred dollars spent in modernizing a house materially adds to the value of the property. The marketability of the property is increased and the whole tone of the neighborhood raised. The banker knows that his security is greater when improvements are made.

The Advisory Home Modernizing Committee of the Bureau of Standards is composed of 17 housing ex-

perts, serving in a voluntary capacity, through the Bureau's division of building and housing. Details of plans used in successful home-modernizing and community-improvement campaigns in various cities, including reports on expenditures, an operating manual outlining local campaign organization, and information of interest to individual home owners, may be secured from the committee on request.

HYDRAULIC-LABORATORY RESEARCH

As the result of a proposal made by Dr. Schaffernak, of Austria, at the World Power Conference at Berlin in 1930, that "an organization be established for the purpose of interchanging, in the field of hydraulic engineering, the results of laboratory research and of observations of natural conditions corresponding thereto", the American committee of the conference asked the Bureau of Standards to serve as the exchange agency for the United States.

The object of the proposed organization is to afford promptly to all the hydraulic laboratories throughout the world information as to the nature of the research which each is undertaking, thus permitting a closer coordination of the work. Results will be interchanged long before the final reports are published, and useless duplication of effort will be prevented.

The first step in organizing this service nationally in the United States was to compile and distribute to the hydraulic laboratories in this country a report covering the activities of these laboratories. As a result of the prompt cooperation of the individual laboratories, it was possible for the Bureau of Standards to issue on April 1, 1933, its first report of this kind, a mimeographed bulletin entitled, "Current Hydraulic Laboratory Research in the United States." The current number gives a history of the undertaking and lists researches in progress in a large number of laboratories. These researches are reported uniformly under nine heads, which give the principal facts needed by anyone interested in looking up the details of these projects. The second report will be issued on July 1, and succeeding numbers will appear quarterly.

In addition to the above service, the Bureau of Standards will compile and issue annually a description of the hydraulic laboratories in the United States, their equipment and facilities for research, insofar as the heads of the laboratories will furnish the necessary information.

Those desiring complete information as to this new service should communicate with the Director, Bureau of Standards, Washington, D.C.

STEEL ROOFING

The standing committee of the industry in charge of simplified practice recommendations R28-29 and R78-28, covering sheet steel, and iron and steel roofing, respectively, has recommended that the existing schedules be reaffirmed without change.

The sheet-steel recommendation is concerned with the various gages of galvanized flat, one-pass cold-rolled box-annealed, and blue-annealed sheets.

Style and form, width, length, gage, and weight of galvanized or painted roofing are contained in the iron and steel roofing simplified schedule.

GRINDING WHEELS

Simplified practice recommendation R45-32 (fourth edition) covering grinding wheels, as revised by the standing committee of the industry, is now in print, and copies can be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C., for 5 cents each.

A large majority of all the grinding wheels used in this country fall within the nine types, the dimensions of which are set up by this recommendation. There is also included a standard nomenclature for various classes of work found in the grinding industry.

CUPOLA REFRACTORIES

A simplified practice recommendation covering cupola refractories has been mailed to all interests in the industry by the Bureau of Standards for their consideration and written acceptance.

This recommendation, which was proposed and formulated by the industry, provides a simplified list of sizes for cupola blocks, 1- and 2-hole tap-out blocks, and slag-hole blocks.

The simplified schedule will be effective on announcement by the Bureau that the required degree of acceptance has been received.

PAVING BRICK

The printed copies of the revised simplified practice recommendation R1-32, covering vitrified paving brick (eighth edition), are now available, and can be obtained from the Superintendent of Documents, Government Printing Office, Washington, D.C., for 5 cents each.

The 1932 revision, described in the current publication, has been recently reaffirmed for another year by the industry's standing committee.

This simplified practice recommendation, which was proposed and formulated by the industry, has been instrumental in reducing the number of varieties of vitrified paving brick from 66 to 6, or approximately 91 percent.

STANDARDIZATION BRIEFS

Airplane fuel made from coal is to be used by one of the British home-defense air squadrons. The British Ministry of Air has contracted for a year's supply of the new petrol made from coal.

The galvanizing tests contained in several British specifications dealing with steel wire, steel-wire ropes, and aluminum overhead power-transmission conductors (specifications nos. 163, 182, 183, 184, 215, 236, 237, 300, 302, 330, and 336) have been superseded by the test described in British Standard Specification "Testing of the Zinc Coating on Galvanized Wires", according to information received from the British Standards Institution, 28, Victoria Street, London, SW. 1.

The use of "wired wireless" as a substitute for standard radio receiving sets as used in the United States is gaining considerable momentum under conditions existing in several European countries. This system of radiobroadcast reception is used extensively in Holland, Belgium, Switzerland, the United Kingdom, and other European countries. "Wired wireless" is a system of broadcast reception requiring the direct transmission of radio programs by wire from a central receiver or broadcasting station into the homes of subscribers. The service is sometimes supplied over the regular telephone wires but in such a manner as to permit the usual telephone service. The subscriber to the "wired wireless" service is furnished a loud speaker of special design which is plugged into an outlet provided for that purpose. Most systems provide two or more programs by duplicating the wiring outlets.

Standardization and safety in plant, corrosion, fire prevention and control will feature the World Petroleum Congress, to be held at the Imperial College of Science and Technology, South Kensington, London, England, July 19 to 25, 1933. The congress is organized by the Institution of Petroleum Technologists.

STANDARDS AND SPECIFICATIONS FOR METALS AND METAL PRODUCTS

Compiled by the Bureau of Standards, United States Department of Commerce

Bound in green buckram, 10 chapters

Adequate index, 1,300 pages 7 $\frac{5}{8}$ by 10 $\frac{5}{8}$ inches



This volume of the Encyclopedia Series contains the standards and specifications for metals and metal products prepared by over 80 nationally recognized organizations authorized to speak for industry or for the Federal Government as a whole.

In this volume are reproduced the substance and form of all available nationally recognized specifications for such commodities as are embraced within the numerical classification designations 600 to 699 in the national directory of commodity specifications. This great mass of material is so presented as to make it readily available for use by those interested in all the nationally recognized specifications on iron and steel and nonferrous metals.

OUTLINE OF CONTENTS

| Class No. | Commodities |
|-----------|---|
| 600-609. | Iron and steel. |
| 610-619. | Iron and steel manufactures. |
| 620-629. | Ferro-alloying ores, metals, and metal manufactures. |
| 630-639. | Aluminum, antimony, bismuth, cadmium, and cobalt. |
| 640-649. | Copper, brass, and bronze. |
| 650-659. | Lead, mercury, and nickel. |
| 660-669. | Precious metals, metal jewelry, and plated ware. |
| 670-679. | Clocks, watches, and dials. |
| 680-689. | Tin and zinc. |
| 690-699. | Miscellaneous ores, metals, alloys, and metal manufactures. |

Includes:

1. Either in full or by suitable abstract, tabulation, or cross reference, over 1,600 nationally recognized standards and specifications, covering both ferrous and nonferrous metals and their manufacture, except machinery, vehicles, and electrical supplies.
2. Methods of testing, chemical analyses, metallic coatings, and heat treatment of metals in considerable detail.
3. Over 1,100 illustrations to illuminate the text.
4. Some 2,000 cross references to demonstrate the close relationship existing among the specifications assigned to the metals.
5. A wealth of information that would otherwise occupy many additional pages of text is condensed into tables. There are 1,700 such tables.
6. An extended index of approximately 3,500 items containing all references to any metallic commodity referred to in these 1,600 specifications, so that comparisons may readily be made between the specification requirements of the various specification-producing organizations.
7. A list of technical societies, trade associations, and other organizations issuing standards and specifications for metals and metal products, together with names and addresses of their secretaries or other officers, to indicate proper sources for information as to possible revisions or supplemental data.

Price \$3

Buckram bound

Compiled by Bureau of Standards

Miscellaneous Publication No. 120

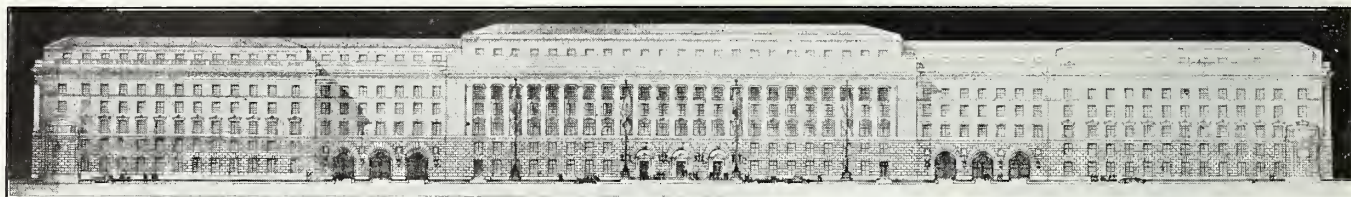
*For sale by the Superintendent of Documents, United States
Government Printing Office, Washington, D.C.*

THE UNITED STATES DEPARTMENT OF COMMERCE

DANIEL C. ROPER, Secretary of Commerce

"* * * this Department * * * is devoted solely to aiding and fostering the development of higher standards of living and comfort of our people * * * its ideals are clear: That by cooperation and not by compulsion it should seek to assist in maintaining and giving the impulse of progress to commerce and industry in a nation whose successful economic life underlies advancement in every other field."

—President Hoover, at the laying of the corner stone of the new building of the U. S. Department of Commerce, June 10, 1929.



AERONAUTICS BRANCH,

Establishment of civil airways and maintenance of aids to air navigation; inspection and registration of aircraft and licensing of pilots; enforcement of air traffic rules; investigation of accidents; encouragement of municipal airports; fostering of air commerce; scientific research in aeronautics; and dissemination of information relating to commercial aeronautics. (Some of these functions are performed by special divisions of the Lighthouse Service, the Bureau of Standards, and the Coast and Geodetic Survey.)

BUREAU OF THE CENSUS, W. L. AUSTIN, Director.

Taking censuses of population, mines, and quarries, water transportation, and religious bodies every 10 years; censuses of agriculture and electrical public utilities every 5 years; and a census of manufactures every 2 years. Compilation of statistics of wealth, public debt, and taxation, including financial statistics of local governments, every 10 years; annual compilation of financial statistics of State and municipal governments.

Compilation of statistics of marriage, divorce, births, deaths, and penal and other institutions annually, and of death rates in cities and automobile accidents weekly.

Compilation quarterly or monthly of statistics on cotton, wool, leather, and other industries; annually of forest products.

BUREAU OF FOREIGN AND DOMESTIC COMMERCE, F. M. FEIKER, Director.

The collection of timely information concerning world market conditions and openings for American products in foreign countries, through commercial attachés, trade commissioners, and consular officers, and its distribution through weekly Commerce Reports, bulletins, confidential circulars, the news and trade press, the monthly Survey of Current Business, and district and cooperative offices in 65 cities. The maintenance of commodity, technical, and regional divisions to afford special service to American exporters and manufacturers.

The compilation and distribution of lists of possible buyers and agents for American products in all parts of the world and publication of weekly lists of specific sales opportunities abroad.

The publicity of statistics on imports and exports.

The study of the processes of domestic trade and commerce.

BUREAU OF STANDARDS, LYMAN J. BRIGGS, Acting Director.

Custody, development, and construction of standards of measurement, quality, performance, or practice; comparison of standards used by scientific or other institutions; determination of physical constants and properties of materials; researches and tests on materials and processes; and publication of scientific and technical bulletins reporting results of researches and fundamental technical data.

Collection and dissemination of information concerning building codes and the planning and construction of houses.

Establishment of simplified commercial practices through cooperation with business organizations in order to reduce the wastes resulting from excessive variety in commodities.

BUREAU OF MINES, SCOTT TURNER, Director.

Technical investigations in the mining, preparation, and utilization of minerals, including the study of mine hazards and safety methods and of improved methods in the production and use of minerals.

BUREAU OF MINES—Continued.

Testing of Government fuels and management of the Government Fuel Yard at Washington.

Research on helium and operation of plants producing it.

Studies in the economics and marketing of minerals and collection of statistics on mineral resources and mine accidents.

The dissemination of results of technical and economic researches in bulletins, technical papers, mineral resources series, miners' circulars, and miscellaneous publications.

BUREAU OF FISHERIES, FRANK T. BELL, Commissioner.

The propagation and distribution of food fish and shellfish, in order to prevent the depletion of the fisheries; investigations to promote conservation of fishery resources; the development of commercial fisheries and agriculture; study of fishery methods, improvements in merchandising, and collection of fishery statistics; administration of Alaska fisheries and fur seals; and the protection of sponges off the coast of Florida.

BUREAU OF LIGHTHOUSES, GEORGE R. PUTNAM, Commissioner.

Maintenance of lighthouses and other aids to water navigation. Establishment and maintenance of aids to navigation along civil airways. Publication of Light Lists, Buoy Lists, and Notices to Mariners.

COAST AND GEODETIC SURVEY, R. S. PATTON, Director.

Survey of the coasts of the United States and publication of charts for the navigation of the adjacent waters, including Alaska, the Philippine Islands, Hawaii, Puerto Rico, the Virgin Islands, and the Canal Zone; interior control surveys; magnetic surveys; tide and current observations; and seismological investigations. Publication of results through charts, coast pilots, tide tables, current tables, and special publications.

BUREAU OF NAVIGATION AND STEAMBOAT INSPECTION, ARTHUR J. TYRER and DICKERSON N. HOOVER, Assistant Directors.

Superintendence of commercial marine and merchant seamen. Construction and administration of navigation laws covering documentation, ship mortgage act, entry and clearance, movement of vessels, welfare of seamen, admeasurement, load line, adjudication of fines, collection of fees, tonnage tax, etc. Compilation of Federal statistics of tonnage and merchant seamen.

The inspection of merchant vessels, including boilers, hulls, and life-saving equipment, licensing of officers of vessels, certification of able seamen and lifeboatmen, and the investigation of violations of steamboat inspection laws.

UNITED STATES PATENT OFFICE, CONWAY P. COE, Commissioner.

The granting of patents and the registration of trade-marks, prints, and labels after technical examination and judicial proceedings.

Maintenance of library with public search room, containing copies of foreign and United States patents and trade-marks. Recording bills of sale, assignments, etc., relating to patents and trade-marks. Furnishing copies of records pertaining to patents. Publication of the weekly Official Gazette, showing the patents and trade-marks issued.





