

ditions, chromium, tungsten, vanadium and molybdenum go into solution and produce a martensitic pattern in the air-cooled specimens. Cerium and uranium act in a similar manner but also show characteristic inclusions. Copper goes into solution but a larger amount is required to produce a martensitic pattern in the air-cooled samples than for the others. Boron forms a complex eutectic, probably that of an iron-carbon-boron compound with iron. This eutectic is fusible at the temperatures ordinarily used in rolling, but at slightly lower temperatures steel containing boron can be rolled successfully. Hot working breaks up the eutectic and spherical hard particles, similar to iron carbide globules, are formed.

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#### REPORT OF 14th ANNUAL CONFERENCE ON WEIGHTS AND MEASURES.<sup>5</sup>

[ABSTRACT.]

THIS publication is a verbatim report of the Fourteenth Annual Conference on Weights and Measures, an organization composed of state and local officials engaged in the enforcement of weights and measures laws throughout the United States. The conferences are held to promote uniformity in weights and measures laws, rules and regulations, and specifications and tolerances, and the enforcement thereof in methods of inspection of apparatus.

The Secretary of Commerce gave an address pointing out the necessity for proper supervision of weights and measures and the president of the conference and Director of the Bureau of Standards outlined advances made during the year. State and local officials gave reports on conditions in their respective jurisdictions, the majority of which indicated that conditions were gradually improving, that the work was gaining in public importance, and that excellent legislation was being enacted.

Perhaps the most important single accomplishment of the present conference was the adoption of a proposed model law for the sale of bread, the text of this being agreed upon after several papers had been delivered by representatives of the baking industry and of the officials, and a general discussion held. In brief, this law proposes standardization of the loaves and provides

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<sup>5</sup> Miscellaneous Publication No. 48.

that bread shall be sold only in loaves weighing one-half pound, one pound, one and one-half pounds or multiples of a pound.

The specifications and tolerances for liquid-measuring devices adopted by the preceding conference were reviewed and several changes were made, the advisability of which was indicated by the enforcement of the regulations in the field during the year. New tolerances were adopted, two cubic inches being allowed on deliveries of one-half gallon or less, three cubic inches on a gallon delivery, and one cubic inch per gallon additional in the case of deliveries of more than this amount. These serve to increase the former tolerance on small deliveries and decrease it on large deliveries. Also it was provided that the tolerance in excess only is not to be applied to condemn pumps on tests of deliveries made at a more rapid speed than normal speed of delivery. Some of the more important changes in specifications were as follows: Allowing two delivery outlets when deliveries are properly safeguarded; adding the two and one-half gallon size to the allowable capacities for devices; adding to the scope of the regulations by including devices intended to be attached to and used in connection with liquid-measuring devices; and allowing scales with non-parallel lines when proper indication is obtainable. There was a general discussion of the application of retroactive specifications for liquid-measuring devices.

There was referred to the Committee on Specifications and Tolerances for consideration during the coming year and report to the next conference the question of tolerances on bread weights, and specifications and tolerances on heavy-duty automatic scales, fabric-measuring devices, and tank wagons it being developed in discussion that additional regulations for these devices were becoming necessary. Among the resolutions adopted were endorsements of the slack-filled package bill, and of the principles of national serialization of type of apparatus and of the simplification of packages and containers. The metric system of weights and measures was discussed and it was decided to give this subject a prominent place on the program of the next conference.

Some of the other subjects upon which there were papers and discussions were as follows: The mine scale work of the Bureau of Standards; the proper methods of test of liquid-measuring devices; the enforcement of the federal law requiring the marking of the weight on wrapped meats; the general methods of detecting

violations and proceeding against offenders; the destination weighing of coal in car-load lots; and the education of the public to the necessity of accurate weights.

The appendixes contain the specifications and tolerances for liquid-measuring devices as amended by the conference; the text of the model bread law adopted, and a new section on this subject in conformity with the above to be inserted in the proposed general model state law on weights and measures adopted by previous conferences and recommended to the various states for enactment.

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### SPECIFICATIONS FOR LIME-FLINT GLASS TUMBLERS.<sup>9</sup>

[ABSTRACT.]

SPECIFICATIONS are given for a plain pressed hotel tumbler made of lime-flint glass. The items include the designation, measurements, material, quality, tolerance in size and weight, shock test, boiling test, acceptance, and sampling. They were formulated under the auspices of the Bureau of Standards and have been accepted by the Army, Navy and Marine Corps, Public Health Service, and General Supply Committee of the United States Government. At least 95 per cent. of the samples must pass all tests. The tests include five fillings with boiling water with sample at room temperature at the start (the shock test); and boiling for six hours to disclose any sign of corrosion, scumming, chipping, or cracking (boiling test). Traces of color or bubbles if not unsightly are allowed, but there must be no stones, cords, nor fine cracks. The dimensions, weight, and capacity are specified with the minimum and maximum allowable for each.

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**An Investigation of the Constancy in Wave-length of the Atmospheric and Solar Lines.** C. E. ST. JOHN and H. D. BABCOCK. (*Astrophys. J.*, Jan., 1922.)—A few years ago Perot reported a series of observations on the wave-length of atmospheric lines in the solar spectrum. According to him the wave-length of an oxygen line in the B group increased from morning to noon, after which time it grew less. These results are contradicted by careful measurements made on 25 plates taken at Mount Wilson Observatory. The variation is within the limits of accidental error.

G. F. S.

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<sup>9</sup> Circular No. 119.